

Appendix B

HTRW

(Phase 1 Report and Results of Shallow Soil Investigation)

**PHASE I PRELIMINARY
ENVIRONMENTAL SITE ASSESSMENT FOR
CALIFORNIA QUARTET PROPERTY
BEL MARIN KEYS UNIT V
MARIN COUNTY, CALIFORNIA**

**5 May 2000
EKI A00018.00**

**CALIFORNIA QUARTET PROPERTY
MARIN COUNTY, CALIFORNIA
PHASE I ENVIRONMENTAL SITE ASSESSMENT
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EXECUTIVE SUMMARY

On behalf of California Quartet, LLP, Erler & Kalinowski, Inc. ("EKI") performed a Phase I preliminary environmental site assessment for the property known as the California Quartet Property Bel Marin Keys Unit V, located adjacent to Bel Marin Keys, Marin County, California ("subject property"). This assessment was performed in accordance with the Agreement between EKI and California Quartet, LLP dated 7 March 2000. A summary of the findings of this assessment is presented below.

ES.1 Land Use and Environmental Investigations on the Subject Property

Based on available historical information reviewed by EKI, the subject property has been in agricultural use (i.e., oat hay and tomato farming) for many decades. Prior to agricultural use, the subject property was likely a tidal marsh. Approximately a dozen structures currently exist on the subject property. These include residential buildings associated with Headquarters Hill located at the extreme western edge of the subject property, an old rectangular shed located in the southwest portion of the subject property, and an old residence and rectangular building located in the north central portion of the subject property. The northeastern portion of the subject property has also been used for placement of dredge spoils from Bel Marin Keys.

Potential environmental concerns identified in association with current and historical uses on the subject property include: (a) the use of herbicides and/or pesticides for weed and bug control, (b) the presence/use of fuel storage tanks for vehicle filling, and (c) the presence of debris piles in the northeastern corner of the subject property. A summary of each of these issues is presented below. In addition, a summary of results of mercury sampling of dredge spoils conducted by Advanced Biological Testing, Inc. is presented in section ES.1.3. Sampling of dredge spoils was conducted to evaluate if mercury concentrations present in these spoils could adversely impact wetland species if the property is converted into wetland in the future.

ES.1.1 Potential Chemical Use

Information obtained regarding the subject property and the predominantly agricultural use of the subject property, indicates that pesticides and herbicides were likely applied to surface soil on this property. However, results of soil sampling conducted across the central and western portions of the subject property in 1989 did not identify the presence of detectable concentrations of organochlorine pesticides, herbicides, PCBs, or petroleum hydrocarbons in shallow soil samples, including the herbicide 2,4-D which is reported to have been used on the subject property in the 1980's. Therefore, widespread impacts to soil on the subject property of these compounds are unlikely.

No testing of soil on the subject property was conducted for potentially toxic degradation products of 2,4-D (e.g., 2,4-dichlorophenol) or potential contaminants found in some manufactured forms of 2,4-D (i.e., dioxins; Industry Task Force, 1999). Therefore, although concentrations of these compounds would likely be very limited due to their susceptibility to

degradation and/or limited initial concentrations, these byproducts of 2,4-D could still be present in shallow soil on the subject property.

In addition, no sampling for potential chemicals of concern has been conducted near the sheds identified on the subject property. These sheds may have been used to store pesticides and herbicides as well as petroleum hydrocarbons (i.e., fuels and oils) and solvents (i.e., degreasing solvents), which may have been used in association with farm equipment maintenance and repair. Therefore, if soil in the vicinity of these sheds contains residual concentrations of petroleum hydrocarbons, solvents, and or agricultural chemicals it would not have been detected during the prior soil sampling conducted on the subject property.

ES.1.2 Fuel Storage Tanks

A previous environmental assessment conducted by Blymyer indicated the presence of two above ground fuel tanks and dispenser off the southern base of Headquarters Hill. At the time of the current walk through, the only remaining remnant of this former fueling area was the concrete pad. No visible signs of fuel releases (i.e., staining or odors) were observed during the walk through. However, no tank closure documentation was identified at the local agencies. Additionally, no soil or groundwater sampling has been conducted at this location.

One above ground storage tank was also observed at the southern base of Headquarters Hill, near a mobile home residence. This tank was approximately 3 feet in diameter and 4 feet in length and was situated on wooden blocks. The tank was not in use and appeared as if it had been stored at this location for some time. Tapping of the sides of the tank resulted in a hollow sound, indicating the tank was empty or almost empty. No visible signs of fuel releases were observed at this location. However, no soil or groundwater sampling has been conducted at this location.

ES.1.3 Debris Piles

The 1994 Miller Pacific Engineer Group Phase I report for the subject property indicated the presence of a refuse pile located in the northeastern corner of the subject property and a pile of tires in the eastern portion of the subject property. Both piles were located on the bay side of the levee. Due to access constraints at the time of EKI's walk-through of the subject property, these refuse piles were not observed by EKI. No visual observations of obvious hazardous materials were reported by the Miller Pacific Engineer Group.

ES.1.3 Mercury Sampling of Dredge Spoils

In March 2000, sampling for mercury and methyl-mercury was conducted. Samples were collected from dredge spoils located in the northeastern portion of the property and which originated from the Bel Marin Keys. Results of the sampling indicate mercury concentrations range from 0.181 to 0.496 milligrams per kilogram ("mg/kg"), and methyl-mercury concentrations range from 0.001 to 0.0325 mg/kg in shallow soils in the northeastern portion of the subject property. Mercury and methyl-mercury concentrations detected in these samples are below their U.S. Environmental Protection Agency ("EPA") Region 9 Residential Preliminary Remediation

Goals ("PRGs") of 23 mg/kg and 6.1 mg/kg, respectively (U.S. EPA, 1999). The Residential PRGs are human health-risk based goals that are calculated using standard EPA human health exposure assumptions for residential use. These goals are based on a target incremental cancer risk of one in a million and a hazard index of one, which ever is more stringent. Therefore, concentrations of mercury and methyl-mercury detected in these soil samples are not likely to create a significant risk to human health. These results are being reviewed by the U.S. Corps of Engineers and environmental regulatory agencies in association with the potential conversion of the subject property into a wetland.

ES. 2 Potential Environmental Impacts from Nearby Sites

Hamilton Army Airfield ("HAA") and four additional chemical release sites located generally upgradient from the subject property were identified based upon a review of agency files. A summary of potential environmental impacts from these sites on the subject property are described below.

ES.2.1 Hamilton Army Airfield ("HAA")

A number of chemical releases to soil and groundwater have occurred on the Hamilton Army Airfield ("HAA") site, which is located adjacent to and south of the subject property. Chemical releases identified at HAA primarily consist of petroleum hydrocarbon compounds. Volatile organic compounds ("VOCs"), semi-volatile organic compounds, polychlorinated biphenyls, and methyl tertiary butyl ether ("MTBE") have also been detected in some areas. The HAA site is being investigated and remediated by the Army under the oversight of the Department of Toxic Substances Control ("DTSC") in conjunction with the Regional Water Quality Control Board ("RWQCB"), and the U.S. EPA. The remedial investigation of HAA is generally complete and a risk assessment, which identifies screening levels for cleanup has been submitted to the regulatory agencies for review (verbal communication with Lance McMann the current DTSC project officer for HAA). The northern portion of HAA, which is located adjacent to the subject property is proposed for restoration as a wetland (California State Coastal Conservancy and U.S. Army Corps of Engineers, 1998).

Eight potential chemical release sites have been identified on the HAA site near (i.e., within 2000 feet) and potentially upgradient of the subject property. Chemicals detected in soil at these sites include petroleum hydrocarbons, volatile organic compounds, semi-volatile organic compounds, polychlorinated biphenyls, methyl tertiary butyl ether, and polynuclear aromatic hydrocarbons. Results of soil and groundwater investigations conducted at these sites indicate the following:

- (a) Chemically impacted soil is generally limited to within 50 feet of the release sites (IT Corporation, April 1999) and has not been found to extend onto the subject property. In addition, a perimeter ditch and/or levee separate the HAA site from the subject property; therefore, migration of impacted soil from HAA onto the subject property is unlikely.

- (b) No significant groundwater chemical plumes have been identified from chemical releases on the HAA (oral communication with Susan Gladstone of the RWQCB). Therefore, impacts to groundwater on the subject property from releases at these sites are unlikely.
- In addition to these potential chemical release sites identified on HAA, a groundwater plume has been identified beneath a portion of the HAA. This plume contains MTBE, and originates at a gasoline station within the Navy housing area located south of the former runway area, approximately 5000 feet from the subject property. It is being investigated by the Navy under the oversight of the RWQCB. The plume is migrating in a northeasterly direction and significant migration of this plume has occurred, however, it does not currently extend north or east of Ammo Hill, which is located approximately 1,500 feet south of the subject property. Therefore, this plume is not currently impacting groundwater beneath the subject property. However, if this plume is not remediated and additional significant migration of this plume occurs, it could migrate onto the subject property in the future. Discussions with RWQCB staff indicate that continued monitoring and potential remediation of this plume are likely to be required. A tentative RWQCB order was recently issued for this area (oral communication with Susan Gladstone and Jim Ponton of the RWQCB).

ES.2.2 Other Nearby Sites

A government database search identified four additional chemical release sites located generally upgradient from the subject property. However, given the distance of these release sites to the subject property, approximately three-quarters of a mile, and the nature of chemicals detected (e.g. generally petroleum products which tend to degrade readily), impacts to the subject property from these releases are not expected.

1.0 INTRODUCTION

Erler & Kalinowski, Inc. ("EKI") was retained by California Quartet, LLP, to perform a Phase I preliminary environmental site assessment of approximately 1,600 acres of property known as the California Quartet Property Bel Marin Keys Unit V ("subject property") in Marin County, California. The subject property is bounded along the east by San Pablo Bay, along the north and west by the existing Bel Marin Keys Units I-IV residential development and Novato Creek, and along the south and southeast by Hamilton Army Airfield ("HAA") and State lands, respectively (see Figure 1). The north-westernmost portion of the subject property (referred to as Headquarters Hill) is bounded to the west by a wetland area maintained by the Marin County Flood Control and Water Conservation District (see Figure 2).

This Phase I preliminary environmental site assessment, in general, follows the procedures outlined in the American Society for Testing and Materials ("ASTM") *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*, Designation E 1527-97 (published May 1997). The purpose of this assessment is to identify significant potential environmental concerns, if any, associated with the subject property related to past or present on-site land uses and nearby off-site land uses. This assessment is based on information obtained from the following sources:

- review of available historical land use information for the subject property and vicinity, including historical aerial photographs dated between 1950 and 1999;
- review of a computer database search of agency lists identifying reported chemical use and release sites at the subject property and surrounding areas;
- review of available file information at the California Regional Water Quality Control Board, California Department of Toxics Substances Control, Marin County Environmental Health Department, and City of Novato Fire Department;
- observations made during a walk-through of the subject property and vicinity on 29 March and 18 April 2000, and discussions with Ms. Sylvia Brenner, consultant for the current property owner, and
- review of various environmental documents pertaining to the subject property and surrounding areas, which are referenced in Section 5.0 of this report. These reports include results of shallow soil sampling on the subject property performed in 1989 and 2000. Additionally, two previous environmental site assessments were performed for the subject property in 1989 and 1994.

No soil, groundwater, or building materials samples were collected by EKI as part of this assessment. The conclusions and recommendations presented herein are our professional opinion and are not a warranty or guaranty as to the presence, absence, or extent of

contamination at the subject property or of releases from or near the subject property. The facts presented herein are based on available information obtained by EKI and represent existing conditions at the subject property at the time of this report. This report is for the sole use of California Quartet, LLP. Unless specifically authorized by EKI, use of or reliance on this report by any other entity is not permitted or authorized.

2.0 DESCRIPTION OF SUBJECT PROPERTY AND VICINITY

2.1 Subject Property

The subject property is located in Marin County west of San Pablo Bay, south of Novato Creek, east/southeast of the Bel Marin Keys residential community, and north of the former Hamilton Army Airfield (see Figure 1). The majority of the 1,600-acre site is situated below mean sea level ("MSL") and is currently and has historically been utilized for farming. The subject property is traversed by drainage ditches, and by levees located along Novato Creek, San Pablo Bay, the Bel Marin Keys residential community, and the boundary with the State Lands abutting the southeastern portion of the subject property. A pump station exists along the eastern property boundary adjacent to San Pablo Bay (see Figure 2). This pump station pumps surface water drainage and groundwater from the subject property to the Bay. The pump station can be accessed by an existing levee which traverses the central portion of the subject property in an east-west direction.

Improvements on the subject property include approximately a dozen structures – occupied residential buildings associated with Headquarters Hill, and old and unoccupied buildings in the western and central portions of the subject property (discussed further in Section 4.0). Other improvements on the subject property include above ground power transmission lines.

2.2 Surrounding Areas

The subject property is bordered to the south by the former Hamilton Army Airfield ("HAA"). The HAA was constructed and first utilized by the military in the 1930s. Southeast of the subject property are the HAA North Antenna Field ("NAF") facilities which are reported to have been used as a radar facility, military communications, a rifle and gun range, and burn pits reportedly used for fire fighting training (see Figure 2).

North and west of the subject property are the Bel Marin Keys Units I-IV residential subdivisions. The northern residential areas were initially constructed in the 1960s, and expanded to the south in the 1980s. Novato Creek also borders the subject property to the north. This creek has been dredged to provide boat access to Bel Marin Keys (personal communication with Sylvia Brenner).

A wetland area owned by the Marin County Flood Control and Water Conservation District is located west of the westernmost portion of the subject property. San Pablo Bay borders the subject property to the east.

2.3 Site Topography and Hydrogeology

The elevation of the ground surface over the majority of the subject property is approximately four feet below mean sea level. The crest of Headquarters Hill is approximately 40 feet above mean sea level. Surface water and groundwater are collected in drainage ditches which cross the

subject property. This water is discharged to San Pablo Bay via a pump located in the eastern portion of the subject property (see Figure 2).

The majority of the subject property is underlain by Bay Mud consisting of clays and silty clays with occasional lenses of sand and sandy clays and some organic and shell deposits. The thickness of the Bay Mud reportedly ranges from zero feet near Headquarters Hill to approximately 100 feet near the Bay margin. The Bay Mud is underlain by sedimentary deposits, and sandstone and shale of the Franciscan Formation.

For the majority of the property, groundwater is maintained below the ground surface through the use of the drainage paths and pump station. The direction of shallow groundwater flow is likely toward Novato Creek and/or San Pablo Bay (i.e., north to northeast across the subject property). The magnitude of the hydraulic gradient across the subject property may be limited due to the proximity of the Bay.

3.0 LAND USE HISTORY

Information on historical land use of the subject property and surrounding areas was obtained from the review of available historical aerial photographs at Pacific Aerial Surveys in Oakland, California. EKI reviewed aerial photographs for the subject property and surrounding areas for the years listed below:

- November 1950 March 1980
- March 1958 May 1982
- April 1966 April 1986
- July 1970 March 1990
- January 1972 April 1992
- April 1975 August 1995
- February 1999

The following is a brief summary of the land use history of the subject property and vicinity based on available historical information reviewed by EKI.

3.1 Prior to 1950s

Western Ecological Services Company, Inc. ("WESCO") prepared *A Cultural Resources Assessment for the Bel Marin Keys Unit V Residential Development*, dated August 1992. This report provided a history of the subject property. According to WESCO, the subject property was first acquired from the State of California by Henry Hansen in 1868, and deeds through 1870 refer to a brickyard on the property. No evidence of the existence of a brickyard has been identified in recent assessments or investigations. An 1876 land transaction deeded the property to E.B. Perrin. This deed refers to two-story brick house, stables and other improvements, which is likely located in the area now referred to as Headquarters Hill. Headquarters Hill was the farming headquarters for subsequent landowners. John W. Ferris owned the property between 1878 and 1912. Ferris was a developer involved in the constructions of levees and canals for properties in other counties he owned; it is likely the levees on the subject property were constructed during his ownership. The dwelling and associated outbuildings located in the north central portion of the property were likely constructed prior to 1887, when they first appeared on maps. It is likely that Ferris rented this property to sharecroppers. The pumphouse on the eastern edge of the property was likely constructed prior to 1916, when it first appears on maps.

California Packing Corporation ("CPC") owned on the property from 1916 through 1948. CPC raised sugar beets, peas, and other crops; and bred stallions which were also used in farm work. Irrigation for crops was provided by onsite irrigation wells which have since been abandoned due to saltwater intrusion. The locations of these wells are unknown. If these wells still exist, such wells could provide vertical pathways for migration of groundwater and chemicals, if present.

The additional structures at Headquarters Hill and the barn located south of Headquarters Hill were likely constructed during CPC's tenure in the 1940s (WESCO, 1992).

3.2 1950s and 1960s

In the 1950s aerial photographs, the subject property appears generally as it does at the present time. The subject property is in agricultural use and is bisected by a number of drainage ditches. Reportedly, tomatoes were farmed at the subject property in the 1950s, followed by a few years where the land was fallow (personal communication with Jens Kuhlberg, current lessee of the subject property). Oat hay has been farmed at the subject property since the late 1950s to the present.

The buildings on Headquarters Hill are evident as well as a rectangular shed in the southwest portion of the subject property, and an apparent residence and rectangular shed in the north central portion of the subject property. The use of the rectangular shed in the north central portion of the property cannot be discerned from review of the aerial photos, but its use may be related to on-site agricultural activities (i.e., equipment or agricultural chemical storage and/or maintenance sheds).

South of the subject property, HAA is visible as well as features on the North Antenna Field ("NAF"), including the rifle and gun range, and two to three apparent antenna arrays. Approximately half a dozen areas of ground surface disturbance are noted in the NAF area, with one area located in the extreme western portion of the NAF area, adjacent to the subject property boundary. Based on information obtained from prior assessments for the subject property and the HAA, it is possible these ground surface disturbance areas are burn pits. Units I through III of the Bel Marin Keys residential subdivision first become evident in the 1966 aerial photograph.

3.3 1970s through 1990s

In the 1972 aerial photograph, apparent filling activities are occurring in the extreme western portion of the subject property, immediately southeast of Headquarters Hill. In the 1990 aerial photograph, an apparent crop-dusting airplane is observed adjacent to the buildings in the north-central portion of the subject property. Approximately three truck trailers, including possibly a tanker trailer, are also observed in this area. Land uses on the subject property and adjacent areas appear to change little during the 1970s through 1990s, with the exception of the construction of Unit IV of Bel Marin Keys, which is visible in the 1982 aerial photograph.

Discussion with Mr. Jens Kuhlberg, who has farmed the subject property since approximately 1980, indicated use during his tenure of 2,4-D, an herbicide. Mr. Kuhlberg indicated that in the 1980s, 2,4-D was applied by crop dusting with a small aircraft, however, no storage or mixing of 2,4-D occurred on the subject property. Use of 2,4-D ceased in 1990 or 1991. Mr. Kuhlberg indicates no herbicides or pesticides have been in use at the subject property since that time.

4.0 WALK-THROUGH OF SUBJECT PROPERTY

A walk-through of the subject property was performed by Meg Mendoza of EKI on 29 March and 18 April 2000. The following is a brief discussion of observations made during the walk-through of the subject property.

The main entrance to the farming area of the subject property is a levee road that runs east-west, abutting the Bel Marin Keys residential area. At the time of the walk through, the main levee road was being used for recreational purposes including fishing and as a jogging trail. To the west of this entry road is Headquarters Hill. Two additional dirt roads curve off to the west. A small waterway separates these two dirt roads. One road leads to a trailer residence at the base of Headquarters Hill, and the other leads to a barn on the western side of the property (see Figure 2).

The barn is located in a wooded area and is in a state of disrepair. A few used oil filters and one container (approximately 20 gallons) labeled as lube oil were situated outside the barn. An empty trash container and some plastic sheeting were also located in this area. Oat hay was stored in the interior of the barn.

The subject property is largely used for farming of oat hay. The hay fields are separated by either levees or drainage ditches. Hay fields in the southern and northern portions of the site were planted. Hay fields in the southeastern portion of the site were being worked by farm equipment (disking and spring tooth equipment pulled behind tractors).

The borrow pits which exist east of the Bel Marin Keys residential area (see Figure 2) contained water at the time of the walk-through.

Three structures, one apparent former dwelling and two sheds, are located in the north central portion of the subject property (see Figure 2). All three structures are in a state of disrepair.

Due to recent rains the easternmost portions of the subject property were not accessible during the walk-through. A previous site assessment, prepared by Miller Pacific Engineer Group ("Miller") in 1994, noted a debris pile located in the northeastern corner of the subject property outside the levee, and a pile of tires located outside the levee on the eastern portion of the subject property. No obvious hazardous materials were reported. EKI was unable to access these areas, but we presume the debris piles are still in place.

Headquarters Hill is located on a slight knoll in the northwestern portion of the property. Several structures exist on Headquarters Hill including a main residence, a garage with living unit above, a tower, a bunkhouse, a studio, and two mobile homes. Various outbuildings also exist including a storage shed and a pool equipment shed. A discussion with Mr. Ron Webster, who lives on Headquarters Hill, indicates previous uses of the tower may have been (1) as a water tower to provide gravity feed for pumped well water and (2) as an observation tower by the Hamilton Army Airfield. Further discussion indicated the property had been used as a working ranch

historically. A concrete footing (approximately 10 feet by 10 feet) existed to the northeast of the tower. The use of this footing is unknown.

At the southern base of Headquarters Hill and west of the main levee road, exists a square concrete equipment pad, and partially buried oblong extension. Review of previous reports prepared by Miller and Blymyer (1989) indicate this is the likely location of two former above ground storage tanks and dispenser. Discussion with Mr. Ron Webster indicated the dispenser was used during ranching activities at the subject property. The tanks and dispenser were removed from this location sometime between 1989 and 1994. No visible signs of fuel releases (i.e., staining or odors) were observed at this location. However, no tank closure documentation was identified at the local agencies. Additionally, no soil or groundwater sampling has been conducted at this location.

One above ground storage tank was observed at the southern base of Headquarters Hill, near a mobile home residence. This tank was approximately 3 feet in diameter and 4 feet in length and was situated on wooden blocks. The tank was not in use and appeared as if it had been stored at this location for some time. Tapping of the sides of the tank resulted in a hollow sound, indicating the tank was empty or almost empty. No visible signs of fuel releases were observed at this location. However, no soil or groundwater sampling has been conducted in this area. Other materials and debris are stored at Headquarters Hill, including a go-cart, a sailboat, engine parts, and metal refuse.

5.0 RESULTS OF PRIOR SUBSURFACE INVESTIGATIONS ON THE SUBJECT PROPERTY

5.1 Blymyer Engineers Soil Sampling (1989)

In 1989, Blymyer Engineers, Inc. sampled the soil at 22 locations throughout the southwestern and central portions of the subject property. The soil samples were collected at approximately 12-inches below ground surface. Composite soil samples were analyzed for total petroleum hydrocarbons ("TPH") as diesel, PCBs, organochlorine pesticides, and herbicides, including 2,4-D which was reportedly used at the subject property from approximately 1980 to 1991. None of the composite soil samples analyzed showed detectable levels of these compounds. Copies of the analytical data sheets for the soil samples and a map showing the sample locations are included in Appendix A.

Soil samples, however, were not analyzed for potential degradation products of 2,4-D, (e.g., 2,4-dichlorophenol) or for dioxins, which have been found at measurable levels as a contaminant in some manufactured forms of 2,4-D (i.e., at concentrations ranging from 5 ug/kg to 500 ug/kg). These compounds can be toxic to humans and other species. Recent studies conducted on the environmental fate of 2,4-D, indicate that the average half-life of 2,4-D ranges from approximately 1 to 7 days and that typical 2,4-D residues (i.e., degradation products) are not persistent in soil, water or vegetation (Extension Toxicology Network, 1996). Dioxins, however, if present, are not readily degradable. Therefore, although likely limited in concentration, some toxic byproducts of 2,4-D could still be present in shallow soil on the subject property.

5.2 Mercury Soil Sampling

In March 2000, Advanced Biological Testing, Inc. (ABT) sampled soil at 8 locations in the northeastern portion of the property for mercury and methyl-mercury. This northeastern section of the property has received dredge spoils resulting from historic dredging of Bel Marin Keys.

Results of the sampling indicate mercury concentrations range from 0.181 to 0.496 milligrams per kilogram ("mg/kg"), and methyl-mercury concentrations range from 0.001 to 0.0325 mg/kg in shallow soils. Mercury and methyl-mercury concentrations detected in these samples are below their U.S. Environmental Protection Agency ("EPA") Region 9 Residential Preliminary Remediation Goals ("PRGs") of 23 mg/kg and 6.1 mg/kg, respectively (U.S. EPA, 1999). The Residential PRGs are human health-risk based goals that are calculated using standard EPA human health exposure assumptions for residential use. These goals are based on a target incremental cancer risk of one in a million and a hazard index of one, whichever is more stringent. Therefore, concentrations of mercury and methyl-mercury detected in these soil samples are not likely to create a significant risk to human health. These results are being reviewed by the U.S. Corps of Engineers and environmental regulatory agencies in association with the potential conversion of the subject property into a wetland. A copy of the report entitled *Results of Soil and Sediment Testing for Total Mercury and Methyl-Mercury at the Bel Marin Keys Disposal Area* is included in Appendix B.

6.0 REGULATORY AGENCY RECORDS REVIEW

6.1 Environmental Data Resources Report

EKI contracted with Environmental Data Resources, Inc. ("EDR") to provide a computer search of various federal, state, and local agency databases in an attempt to identify reported chemical release sites and use sites within approximately one mile of the subject property. The EDR report, dated 9 March 2000, is included in Appendix C. The list of databases searched by EDR, including a list of findings, is shown in the Executive Summary section of the EDR report.

According to the EDR report, the subject property is not listed as a reported chemical use or release site. No agency records identify the former above ground tanks located at the base of Headquarters Hill.

EDR identified five chemical release sites and three chemical use sites located within approximately three-quarters of a mile of the boundary of the subject property. The reported chemical release sites are listed below:

- Hamilton Army Airfield
- Omni-Glow Corporation (20-C Pimentel Court)
- Marin Humane Society (171 Bel Marin Keys Boulevard)
- Tile West (11 Hamilton Drive)
- Novato Fire Station No. 2 (450 Atherton Avenue)

The Novato Fire Station No. 2 (450 Atherton Avenue) is apparently mislocated on the map provided with the EDR report, and will not be considered further in this report.

The three reported chemical use sites located within three-quarters of a mile from the subject property are listed below:

- Cellegy Pharmaceuticals, Inc. (371 Bel Marin Keys)
- Rainbow Press Incorporated (14 Commercial Boulevard, Suite 107)
- Marin Products Company, Inc. (55 Frosty Lane)

EKI submitted requests to the following environmental regulatory agencies to review available file information on the above-listed sites:

- California Department of Toxic Substances Control ("DTSC");
- California Regional Water Quality Control Board ("RWQCB");
- Marin County Environmental Health Department; and
- City of Novato Fire Department.

A brief discussion of the reported chemical use and release sites based on regulatory agency information reviewed by EKI, and potential for impacts to the subject property is presented below.

6.2 Omni-Glow Corporation (20-C Pimentel Court)

According to the EDR report, the Omni-Glow site is located approximately one-half mile west of the Headquarters Hill area of the subject property. Omni-Glow manufactured “activated” glow sticks. Chemicals used onsite included petroleum distillates, phthalates, toluene, salicylic acid, and oxalate. Public documents indicate preparation of a work plan to characterize soil for a sump closure at the Omni-Glow facility. Omni-Glow entered into a Voluntary Cleanup Agreement with the Department of Toxic Substances Control in 1996 (Docket No. HSA-95/96-058). No information was available in public files following this date. Given the distance of Omni-Glow from the subject property and the limited permeability of the sediments in the area, potential chemical releases from the Omni-Glow site are unlikely to impact soil or groundwater on the subject property.

6.3 Marin Humane Society (171 Bel Marin Keys Boulevard)

The Marin Humane Society site is located approximately three-quarters of a mile from the western end of the subject property. In 1991, a 550-gallon underground gasoline fuel tank was removed from the Humane Society. Approximately 20 cubic yards of TPH impacted soil was excavated and removed. TPH as gasoline, BTEX, and MTBE were detected in groundwater at the underground storage tank (“UST”) site. According to a Case Closure Site Summary Form prepared by the RWQCB, dated 15 October 1997, the RWQCB indicated that “the GW pollution plume is limited in areal extent with concentrations of TPH-g, toluene, ethylbenzene, and xylenes dropping substantially 15 feet from the former UST location and with benzene and MTBE concentrations at levels low enough not to represent an environmental or human health threat.” Given this information, the fuel release at the Humane Society site is not expected to adversely impact the subject property.

6.4 Tile West (11 Hamilton Drive)

The Tile West site is located approximately three-quarters of a mile from the subject property. In 1992, soil containing low concentrations of toluene and lead was discovered during the removal of one gasoline UST and one diesel fuel UST. The impacted soil was excavated and removed off-site. Low concentrations of toluene and lead were detected in groundwater. According to a Case Closure letter prepared by the RWQCB, dated 19 August 1993, the Tile West fuel release case is closed due to removal of impacted soil and low concentrations of lead and toluene in groundwater. Impacts to the subject property from the Tile West release are not expected.

6.5 Hamilton Army Airfield

Chemical releases to soil and groundwater have occurred on the Hamilton Army Airfield (“HAA”) site, which is located adjacent to and south of the subject property (Figure 2). Chemical releases identified at HAA primarily consist of petroleum hydrocarbon compounds. Volatile organic compounds (“VOCs”), semi-volatile organic compounds, polychlorinated biphenyls, and methyl

tertiary butyl ether ("MTBE") have also been detected in some areas. The HAA site is being investigated and remediated by the Army under the oversight of the DTSC in conjunction with the RWQCB, and the U.S. EPA. The remedial investigation of HAA is generally complete and a risk assessment, which identifies screening levels for cleanup has been submitted to the regulatory agencies for review (verbal communication with Lance McMann the current DTSC project officer for HAA). The northern portion of HAA, which is located adjacent to the subject property is proposed for restoration as a wetland (California State Coastal Conservancy and U.S. Army Corps of Engineers, 1998).

Eight potential chemical release sites have been identified on the HAA site near (i.e., within 2000 feet) and potentially upgradient of the subject property. Discussions regarding results of investigations conducted at each of these sites and conclusions regarding potential impacts to the subject property from these sites are presented in Sections 6.5.1 through 6.5.8 below. Information regarding a groundwater plume which extends onto the BRAC portion of HAA from a gas station located at adjacent Navy property housing is also presented in Section 6.5.9. This plume is being investigated by the Navy under the oversight of the RWQCB.

6.5.1 JP-4 Pipeline

A buried pipeline that originally carried aviation gasoline and later JP-4 liquid fuel extended along the northern boundary of HAA (see Figure 2). This line split into three parallel supply lines in the vicinity of the hangars). The onshore and offshore portions of this fuel line were evaluated separately and are discussed below.

Onshore Fuel Line

The onshore fuel line extended from the shoreline inland to the fueling facilities near the hangars. This pipeline runs adjacent to (i.e., approximately 175 feet from) the southern boundary of the subject property and was removed in 1975. Based on a subsurface investigation performed by Engineering Science ("ES") in 1993, low concentrations (i.e., less than one part per million) of VOCs (i.e., toluene and xylenes) were detected in soil along the Perimeter Road section of the onshore fuel line. Petroleum hydrocarbons were detected in soil at concentrations greater than 100 milligrams per kilogram. According to ES, lack of detectable concentrations of TPH in soil gas samples at the fuel line depth and the good condition of pipeline indicated that any contamination related to the fuel line was likely to be a result of spills at former fueling stations rather than fuel line leaks.

In 1994, the IT Corporation ("ITC") performed subsequent soil sampling along the fuel pipeline. Based on the results of analyses, the soil contamination was primarily located along the hangar fuel lines. With one exception, detectable levels of contamination did not extend beyond 20 lateral feet from the pipeline. Due to the low hydraulic conductivity of the soil the total extent of the vertical contaminant migration has been limited to 10 feet below ground surface ("bgs"). No significant groundwater impacts have been identified in association with chemical releases along the JP-4 fuel line (verbal communication with Susan Gladstone of the RWQCB).

Based upon these data and information obtained from the RWQCB, impacts to soil and groundwater on the subject property from releases at the on-shore fuel line are unlikely.

Offshore Fuel Line

The offshore fuel line extended from the perimeter ditch to the offshore levee and is located approximately 4000 feet south of the southern shoreline boundary of the subject property (Figure 2). A portion of this line was removed in 1998. The segment of the fuel line that extended out into San Pablo Bay was not removed.

According to ITC 1997 and 1998 sampling results, TPH contamination related to releases from the offshore fuel line was limited to a 12-foot lateral extent and less than a 7.5-foot vertical extent bgs. No significant groundwater impacts have been identified in association with chemical releases along the JP-4 fuel line (verbal communication with Susan Gladstone of the RWQCB).

Based upon these data and information obtained from the RWQCB, impacts to soil and groundwater on the subject property from releases at the on-shore fuel line are unlikely.

6.5.2 Leaking Underground or Above Ground Storage Tanks

A number of above ground ("AST") and below ground ("UST") storage tanks were located throughout the HAA. Substances contained in these tanks included fuel oil, diesel fuel, solvents, pesticides, waste oil, grease, and other substances. Releases from the ASTs and USTs resulted in soil and groundwater contamination by petroleum hydrocarbons and dichloromethane (methylene chloride). The U.S. Army Corps of Engineers' (COE) 1989 *Final Report Hamilton AFB, Storage Tank Removal Project* documented the investigation associated with contamination of eleven areas of HAA. As of 1989, 64 USTs were removed from HAA and 25,000 cubic yards of soil were excavated southwest of the runway.

According to ITC, due to the low hydraulic conductivity nature of the fill soil and the bay mud that underlies the HAA, any spills and leakage associated with the UST and AST sites has been for the most part remediated or contained. The lateral extent of soil contamination that ITC measured at any tank site in 1998 was 50 feet and the vertical extent was 2.5 to 15 feet. No significant groundwater impacts have been identified in association with chemical releases associated with any of these tanks (verbal communication with Susan Gladstone of the RWQCB). Only three of the current or former UST and AST sites associated with HAA are in close proximity to the subject property. These tank sites were all used to store diesel fuel and are described below.

Building 26

Building 26 is located approximately 180 feet south of the subject property. According to the 1996 Environmental Impact Statement ("EIS") prepared by the COE, there was documented evidence in 1996 of a possible release from a fuel UST at Building 26 (see Figure 2). The

majority of chemical impacted soil that was identified in association with the TPH release at Building 26 is limited to within 20 feet of the building. Therefore chemical impacts to the subject property resulting from releases from this tank are unlikely.

Building 20

Building 20 is located approximately 170 feet south of the subject property. ITC detected petroleum hydrocarbons and lead in a groundwater sample collected from the excavation pit following removal of a UST located near Building 20 (see Figure 2), situated approximately 30 feet southeast of the northern perimeter onshore fuel line. Specific information regarding the extent of impacted groundwater at this location was not found, however, Susan Gladstone of the RWQB indicated that no significant groundwater impacts (i.e., migrating plumes) have been identified in association with chemical releases associated with tanks at HAA. Therefore, chemical impacts to the subject property resulting from releases from this tank are unlikely.

Building 15

Building 20 is located approximately 550 feet south of the subject property. According to the 1996 EIS prepared by the COE, one empty AST with a 250-gallon capacity was noted in the vicinity of Building 15 (see Figure 2). There was no visual evidence of releases from the tank reported by the COE.

6.5.3 Landfill 26

The following information regarding Landfill 26 ("LF26") is based on a review of both the 1996 EIS prepared by the COE and a Preliminary Assessment/ Site Investigation Review performed on the HAA site by Ecology and Environment, Inc. ("E&E") in 1991. LF26 is located at the north end of the HAA site between Ammo Hill and Reservoir Hill approximately 1,700 feet from the subject property (see Figure 2). LF26 currently comprises an area of 23 acres and has a total fill volume of approximately 233,000 cubic yards. The primary contaminants associated with LF26 are petroleum-related products and metals. Secondary contaminants found in LF26 include semi-volatile organic compounds, chlorinated pesticides, and polychlorinated biphenyls ("PCBs").

Petroleum hydrocarbons and their degradation products and VOCs were found in the groundwater below LF26. Chlorobenzene was detected in four wells at concentrations up to 230 micrograms per liter ("µg/L"), 1,4-dichlorobenzene was detected in 5 wells at concentrations up to 34 µg/L, and trans-1,2-dichloroethene was detected in one well at 7.4 µg/L. Five dissolved metals were also detected in the groundwater below LF26 at elevated levels. Lead was detected above its EPA maximum contaminant level ("MCL"); and arsenic, boron, barium, and iron were all detected at more than three times their respective background levels.

According to the E&E report, an aquitard impedes vertical migration of contaminants under most of LF 26, but it tapers off resulting in interconnection between the shallow unconfined zone and lower aquifers. The groundwater contamination is reported to be generally limited to the shallow unconfined zone beneath LF26.

Surface drainage from LF26 either runs into a series of unlined ditches and buried culverts that feed the HAA peripheral drainage system or flows into Pacheco Creek. Southeast of LF26, trans-1,2-dichloroethene and trichloroethene ("TCE") were detected in surface water, but have not been detected anywhere else in the vicinity of LF26.

LF26 was capped in 1996 and a groundwater extraction and treatment system was installed in areas surrounding the landfill as part of the remediation design. The groundwater extraction system was discontinued because it could not draw enough water. No definitive groundwater plume has been identified in association with it. Sporadically elevated concentrations of chemicals of concern have been encountered in the vicinity of LF26, but no consistently high concentrations of these compounds are found.

Based upon these data, impacts to soil and groundwater on the subject property from releases at LF26 are unlikely.

6.5.4 Airfield

According to the 1996 EIS prepared by the COE, radioactive waste was buried in culverts at northeast corner of the airfield in the 1950's and 1960's (see Figure 2) located approximately 2,200 feet from the subject property. In 1988, the culverts were recovered by Chem-Nuclear under contract to the U.S. Army. Exhumation generated 13 drums of low-level radioactive waste that were disposed of at a licensed burial site. The assessment of the site concluded no further action was required (EIS, 1996).

According to the EIS, in 1989 an abandoned 55-gallon drum containing PCB at levels of 2,000 parts per billion was discovered in the northern corner of the airfield (see Figure 2). The drum was disposed of in 1990. Soil samples near the drum were uncontaminated.

Based upon these data, impacts to soil and groundwater on the subject property from releases at the Airfield are unlikely.

6.5.5 Perimeter Ditch

The perimeter ditch receives runoff from the entire airfield and discharges into San Pablo Bay. It is located adjacent to (i.e., set back approximately 25 to 50 feet from) the south central and southwestern boundary of the subject property. The portion of the ditch abutting the south central portion of the property is concrete lined, while the portion abutting the southwestern portion of the subject property is unlined. According to the 1996 EIS prepared by the COE, the perimeter ditch was reportedly dredged in 1992, in the fall/winter of 1993/1994, and in 1995. An estimated 200 cubic yards of material was deposited in spoil stockpiles along the perimeter

drainage ditch. Four samples out of the 34 taken in 1998 along the length of the perimeter drainage ditch had detectable levels of polynuclear aromatic hydrocarbons ("PNAs"). Site investigations by ITC in 1998 revealed potential contamination related to metal concentrations above baseline values and pesticides (DDT).

Transport of impacted sediments from the perimeter ditch onto the subject property are unlikely, even in the event of an overflow, due to the presence of a levee which separates this ditch from the subject property. No information regarding potential impacts to groundwater from this ditch were identified.

6.5.6 Petroleum, Oil, and Lubricant ("POL") Area

The petroleum, oil, and lubricant ("POL") area is located southeast of LF26 and approximately 1,500 feet south of the subject property. According to the 1996 EIS prepared by the COE, the POL area contained a variety of fuel storage facilities, including twenty 25,000-gallon USTs used to store Jet fuel and one 750-gallon UST with undetermined contents. In addition there was one 840,000-gallon AST (AST2) and one 25,000-gallon AST used to store JP-4 fuel and the associated fuel lines and pumping systems. All 26 USTs and AST2 were removed by ITC in 1986. The remaining AST and fuel lines were removed in 1990 by ITC.

According to the 1996 EIS prepared by the COE, soil, groundwater, and bedrock in the POL area is impacted by TPH. To date, remediation of this site has consisted of soil and rock removal. While the remediation was partially successful, residual non-lead fuel contamination remains both in the groundwater and unsaturated rock below AST2 and the removed fuel lines. Approximately 15,000 cubic yards of soil contaminated at levels above 100 mg/kg TPH remain in the POL area. Groundwater wells have been installed around the POL area. Data from these wells indicate that the extent of groundwater impact by the POL area does not likely extend onto the subject property and that the plume appears stable (personal communication with Jim Ponton, RWQCB). Therefore, chemical impacts to the subject property resulting from releases from the POL area are unlikely.

6.5.7 Revetment Area

The Revetment Area is located approximately 200 feet south of the subject property and consists of 28 turnouts formerly used for aircraft parking and maintenance, one pad, and revetment. This area was also used for jet engine testing. Fuel and oils were reportedly spilled or dumped onto the ground in the revetment area.

According to the 1996 EIS prepared by the COE, three groundwater monitoring wells, three test pits, and 16 boring locations were installed during 1994. The results of soil analyses indicated that TPH contamination was variable. Soil at approximately one-half of the revetments had TPH concentrations greater than 50 mg/kg, some had TPH concentrations greater than 100 mg/kg, and others showed no significant TPH contamination. The EIS report also indicates some revetment

soils were impacted with semi-volatile organic compounds, as well as low levels of toluene and lead. No significant groundwater contamination was reported.

Based upon these data, impacts to soil and groundwater on the subject property from releases at Revetment Area are unlikely.

6.5.8 North Antenna Field ("NAF")

The North Antenna Field ("NAF") is currently state-owned land, and used by the Novato Police Department as a firing range. The North Antenna Field is located adjacent to the southeastern portion of the subject property (Figure 2). A levee extends along the boundary of the subject property and the NAF. According to Susan Gladstone at the RWQCB, the NAF is currently under investigation by the Army. An initial site characterization report prepared by ITC was submitted in 1999 which reported soil contamination issues associated with the following:

- former burn pit areas (dioxins, furans, and VOCs);
- abandoned automobiles (metals and petroleum hydrocarbons);
- antenna field support facilities septic system (VOCs);
- above ground storage tanks (petroleum hydrocarbons); and
- pistol, rifle and skeet ranges (lead and polynuclear aromatic hydrocarbons).

A Final Removal Action Completion Report for the Ammunition Burn Pit and Rifle Range Road Burn Pit, was submitted to the RWQCB in January 2000, and describes removal of residual debris and contaminated soil associated with these two areas. The status of other issues remains under investigation.

One disturbed area of the ground surface, identified in aerial photographs and which may be a former burn pit, is located near the boundary with the subject property (see Figure 2). Impacts to soil or groundwater on the subject property from this area are unknown; however, no significant groundwater issues associated with the NAF have been reported (Susan Gladstone, RWQCB) and identified soil impacts are not likely to extend onto the subject property because a levee separates the NAF from the subject property (CSW, 1996).

6.5.9 Navy Property Housing

Navy Property Housing exists southwest of LF26 approximately 5000 feet southwest of the subject property. Information obtained from Susan Gladstone at the RWQCB indicates that methyl-tertiary butyl ether ("MTBE") plume originates from a gasoline service station located in this area. This plume is being investigated by the Navy under the oversight of the RWQCB. The plume is migrating in a northeasterly direction and significant migration of this plume has occurred, however, it does not currently extend north or east of Ammo Hill, which is located approximately 1,500 feet south of the subject property. Therefore, this plume is not currently impacting groundwater beneath the subject property. However, if this plume is not remediated and additional significant migration of this plume occurs, it could migrate onto the subject

property in the future. Discussions with RWQCB staff indicate that continued monitoring and potential remediation of this plume are likely to be required. A tentative RWQCB order was recently issued for this area (oral communication with Susan Gladstone and Jim Ponton of the RWQCB).

6.6 Other Chemical Use Sites

Given the distance of the remaining reported chemical use sites (Marin Products Company, Inc., Cellegy Pharmaceuticals, Inc., and Rainbow Press Incorporated) to the subject property (approximately three-quarters of a mile), impacts to the subject property from chemical releases at these sites would not be expected to have a significant adverse impact on the subject property.

7.0 SUMMARY AND CONCLUSIONS

7.1 Land Use and Environmental Investigations on the Subject Property

- The subject property has been in agricultural use (i.e., oat hay and tomato farming) for many decades. The northeastern portion of the subject property has also been used for placement of dredge spoils from Bel Marin Keys.

7.1.1 Chemical Use

- Pesticides and herbicides were likely applied to surface soil on the subject property. However, results of soil sampling conducted across the central and western portions of the subject property in 1989 did not identify the presence of detectable concentrations of organochlorine pesticides, herbicides, PCBs, or petroleum hydrocarbons in shallow soil samples, including the herbicide 2,4-D which is reported to have been used on the subject property in the 1980's. Therefore, widespread impacts to soil on the subject property of these compounds are unlikely.
- No testing of soil on the subject property was conducted, however, for potentially toxic degradation byproducts of 2,4-D (e.g., 2,4-dichlorophenol) or potential contaminants (i.e., dioxins) found in some manufactured forms of 2,4-D (Industry Task Force, 1999). Therefore, although likely limited in concentration due to their susceptibility to degradation and/or limited initial concentrations, these byproducts could still be present in shallow soil on the subject property.
- No sampling for potential chemicals of concern has been conducted near the sheds identified on the subject property. These sheds may have been used to store pesticides and herbicides as well as petroleum hydrocarbons (i.e., fuels and oils) and solvents (i.e., degreasing solvents), which may have been used in association with farm equipment maintenance and repair. Therefore, if soil in the vicinity of these sheds contains residual concentrations of petroleum hydrocarbons, solvents, and or agricultural chemicals it would not have been detected during the prior soil sampling conducted on the subject property.

7.1.2 Fuel Storage Tanks

- A previous environmental assessment conducted by Blymyer indicated the presence of two above ground fuel tanks and dispenser off the southern base of Headquarters Hill. At the time of the current walk through, the only remaining remnant of this former fueling area was the concrete pad. No visible signs of fuel releases (i.e., staining or odors) were observed during the walk through. However, no tank closure documentation was identified at the local agencies. Additionally, no soil or groundwater sampling has been conducted at this location
- One above ground storage tank was also observed at the southern base of Headquarters Hill, near a mobile home residence. This tank was approximately 3 feet in diameter and 4 feet in

length and was situated on wooden blocks. The tank was not in use and appeared as if it had been stored at this location for some time. Tapping of the sides of the tank resulted in a hollow sound, indicating the tank was empty or almost empty. No visible signs of fuel releases were observed at this location. However, no soil or groundwater sampling has been conducted at this location.

7.1.3 Debris Piles

- The 1994 Miller Pacific Engineer Group Phase I report indicated the presence of a refuse pile located in the northeastern corner of the subject property and a pile of tires in the eastern portion of the subject property. Both piles were located on the bay side of the levee. Due to access constraints at the time of EKI's walk-through of the subject property, these refuse piles were not observed by EKI. No obvious hazardous materials were reported.

7.1.4 Mercury Sampling of Dredge Spoils

- In March 2000, sampling for mercury and methyl-mercury was conducted. Samples were collected from dredge spoils located in the northeastern portion of the property and which originated from the Bel Marin Keys. Results of the sampling indicate mercury concentrations range from 0.181 to 0.496 milligrams per kilogram ("mg/kg"), and methyl-mercury concentrations range from 0.001 to 0.0325 mg/kg in shallow soils in the northeastern portion of the subject property. Mercury and methyl-mercury concentrations detected in these samples are below their U.S EPA Region 9 Residential Preliminary Remediation Goals ("PRGs") of 23 mg/kg and 6.1 mg/kg, respectively (U.S. EPA, 1999). Therefore, concentrations of mercury and methyl-mercury detected in these soil samples are not likely to create a significant risk to human health. These results are being reviewed by the U.S. Corps of Engineers and environmental regulatory agencies in association with the potential conversion of the subject property into a wetland.

7.2 Potential Environmental Impacts from Nearby Sites

7.2.1 Hamilton Army Airfield

- Chemical releases to soil and groundwater have occurred on the Hamilton Army Airfield ("HAA") site, which is located adjacent to and south of the subject property. Chemical releases identified at HAA primarily consist of petroleum hydrocarbon compounds. Volatile organic compounds ("VOCs"), semi-volatile organic compounds, polynuclear aromatic hydrocarbons, and MTBE have also been detected in some areas. The HAA site is being investigated and remediated by the Army under the oversight of the DTSC in conjunction with the RWQCB, and the U.S. EPA. The remedial investigation of HAA is generally complete and a risk assessment, which identifies screening levels for cleanup has been submitted to the regulatory agencies for review (verbal communication with Lance McMann the current DTSC project officer for HAA). The northern portion of HAA, which is located

adjacent to the subject property is proposed for restoration as a wetland (California State Coastal Conservancy and U.S. Army Corps of Engineers, 1998).

- Eight potential chemical release sites have been identified on the HAA site near (i.e., within 2000 feet) and potentially upgradient of the subject property. Chemicals detected in soil at these sites include petroleum hydrocarbons, volatile organic compounds, semi-volatile organic compounds, polychlorinated biphenyls, methyl tertiary butyl ether, and polynuclear aromatic hydrocarbons. Results of soil and groundwater investigations conducted at these sites indicate the following:
 - (a) Chemically impacted soil is generally limited to within 50 feet of the release sites (ITC, April 1999) and has not been found to extend onto the subject property. In addition, a perimeter ditch and/or levee separate the HAA site from the subject property; therefore, migration of impacted soil from HAA onto the subject property is unlikely.
 - (b) No significant groundwater chemical plumes have been identified from chemical releases on the HAA (oral communication with Susan Gladstone of the RWQCB). Therefore, impacts to groundwater on the subject property from releases at these sites are unlikely.
- In addition to these potential chemical release sites identified on HAA, a groundwater plume has been identified beneath a portion of the HAA. This plume contains MTBE, and originates at a gasoline station within the Navy housing area located south of the former runway area. It is being investigated by the Navy under the oversight of the RWQCB. The plume is migrating in a northeasterly direction and significant migration of this plume has occurred, however, it does not currently extend north or east of Ammo Hill, which is located approximately 1,500 feet south of the subject property. Therefore, this plume is not currently impacting groundwater beneath the subject property. However, if this plume is not remediated and additional significant migration of this plume occurs, it could migrate onto the subject property in the future. Discussions with RWQCB staff indicate that continued monitoring and potential remediation of this plume are likely to be required. A tentative RWQCB order was recently issued for this area (oral communication with Susan Gladstone and Jim Ponton of the RWQCB).

7.2.2 Other Nearby Sites

- A government database search identified four additional chemical release sites located generally upgradient from the subject property. However, given the distance of these release sites to the subject property, approximately three-quarters of a mile, and the nature of chemicals detected (e.g., generally petroleum products which tend to degrade readily), impacts to the subject property from these releases are not expected.

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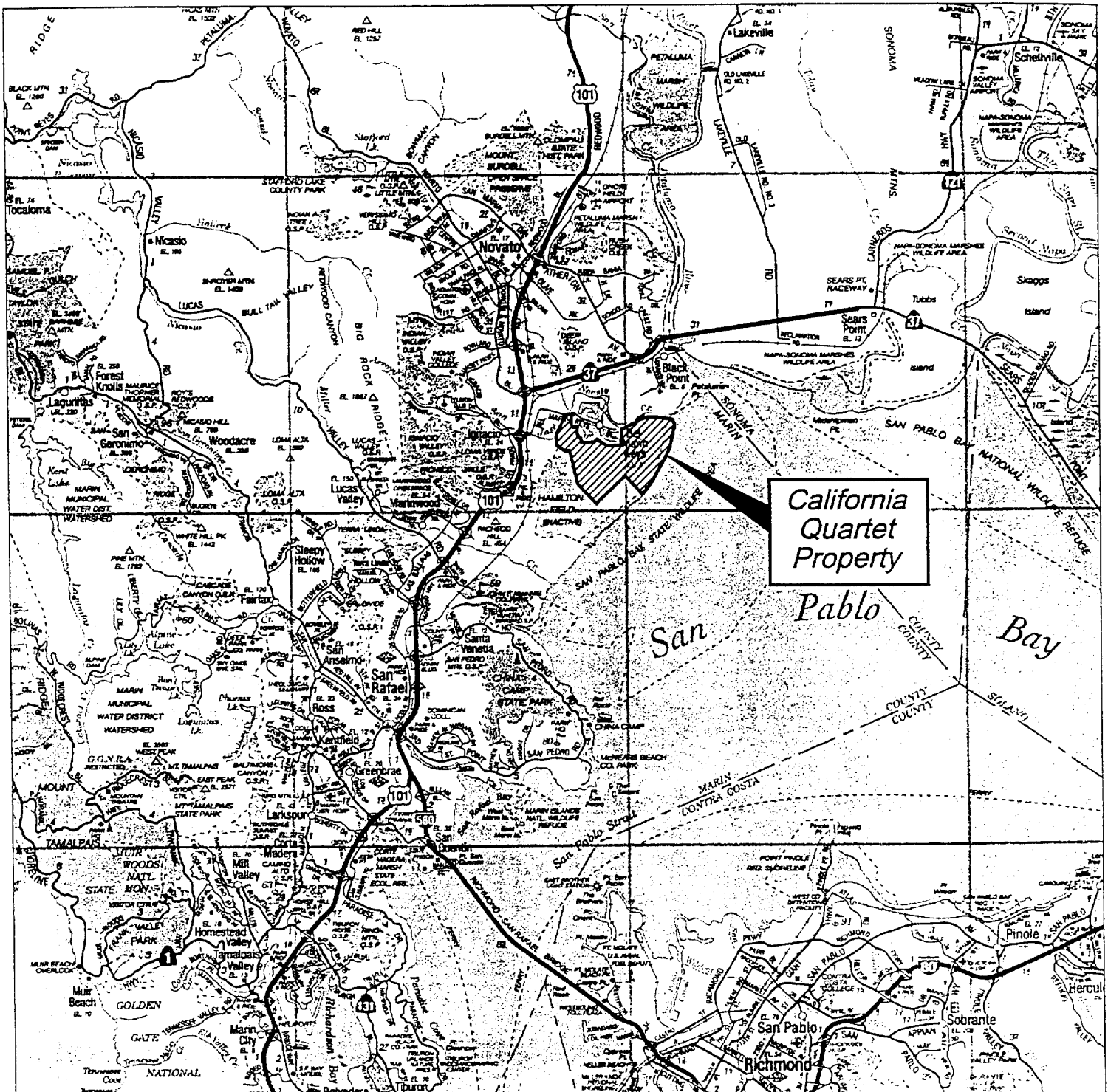
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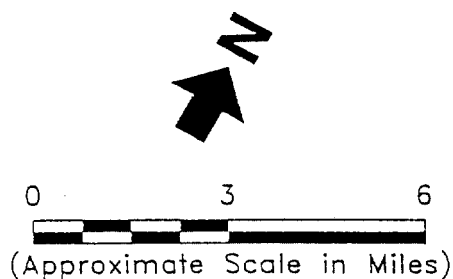


Reference: San Francisco Bay Region AAA Map, 1997.

**Erler &
Kalinowski, Inc.**

Site Location Map

California Quartet Property
Marin, CA
April 2000
EKI A00018.00
Figure 1



APPENDIX A

ANALYTICAL TEST RESULTS OF SOIL SAMPLING



NATIONAL
ENVIRONMENTAL
TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Formerly: ANATEC Labs, Inc.

Sue Black
Blymyer Engineers, Inc
1829 Clement Ave
Alameda, CA 94501

01-31-89
NET Pacific Log No: 5275 (1-10)
Series No: 495
Client Ref: Project# 88323

Subject: Analytical Results for 10 Soil Samples Identified as "Ignacio"
Received 01-13-89.

Dear Ms. Black:

Analysis of the samples referenced above has been completed. This report is written in confirmation of results transmitted verbally on January 30 and 31, 1989. Results are presented on the following pages.

Samples were delivered to the laboratory under documented chain-of-custody. On receipt, sample custody was transferred to NET Pacific sample control personnel who subsequently documented receipt and condition of the samples and placed them in secured storage at 4°C until analysis commenced.

Samples were prepared for extractable hydrocarbons measurements by thorough mixing and subsequent extraction with methylene chloride; extraction, aided by sonication, was performed three successive times for each sample. Extracts were then combined, dried over sodium sulfate and concentrated in Kuderna-Danish apparatus. Extracts were analyzed by capillary-column gas chromatography with flame ionization detection. Preparation and analysis of samples was accompanied by similar treatment of a sample replicate, method blank and a diesel-fortified sample. Response of the chromatographic system to calibration standards prepared with commercial diesel and motor oil were compared with system response to samples for purposes of qualitative and quantitative interpretation.

Details of the analytical methodology are consistent with requirements specified in Method "II" ("Total Fuel Hydrocarbons, Medium-to-High Boiling Point Hydrocarbons") in "Guidelines for Addressing Fuel Leaks," Regional Water Quality Control Board, San Francisco Bay Region, revised 1986; the preparation procedures used are described in detail in "Sonication Extraction," Method 3550 for in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," U.S. EPA, SW-846, 3rd edition, revised 1986.

Polychlorinated biphenyls (PCBs) and organochlorine pesticides measurements were performed in accord with U.S. EPA Method 8080 in U.S. EPA, SW-846, (ibid.). Briefly, a portion of each sample was extracted three successive times with methylene chloride aided by ultrasonic agitation. The extracts were combined and reduced in volume by evaporation of solvent. Extracts were solvent-exchanged into hexane, acid cleaned, then analyzed by gas



495/

LOG NO 5275

- 4 -

January 31, 1989

		<u>Descriptor, Lab No. and Results (mg/Kg)</u>		
<u>Parameter</u>	<u>Reporting Limit (mg/Kg)</u>	<u>S-1</u>	<u>S-2</u>	<u>S-3</u>
		<u>01-12-89</u>	<u>01-12-89</u>	<u>01-12-89</u>
		1245	1300	1312
		<u>(-20988)</u>	<u>(-20989)</u>	<u>(-20990)</u>
PETROLEUM HYDROCARBONS				
Extractable,				
as Motor Oil	10	ND	ND	ND
as Diesel Fuel	10	ND	ND	ND

		<u>Descriptor, Lab No. and Results (mg/Kg)</u>		
<u>Parameter</u>	<u>Reporting Limit (mg/Kg)</u>	<u>S-4</u>	<u>S-5</u>	<u>S-6</u>
		<u>01-12-89</u>	<u>01-12-89</u>	<u>01-12-89</u>
		1330	1345	1405
		<u>(-20991)</u>	<u>(-20992)</u>	<u>(-20993)</u>
PETROLEUM HYDROCARBONS				
Extractable,				
as Motor Oil	10	ND	ND	ND
as Diesel Fuel	10	ND	ND	ND

THE COVER LETTER AND KEY TO ABBREVIATIONS ARE AN INTEGRAL PART OF THIS REPORT



Descriptor, Lab No. and Results (mg/Kg)					
		Comp 7,19,20 ,21 01-12-89 (-20994)	Comp 15,16,1 7,18 01-12-89 (-20995)	Comp 8,9,10, 11 01-12-89 (-20996) ^a	Comp 12,13,1 4,22 01-12-89 (-20997)
Parameter	Reporting Limit (mg/Kg)				
ORGANOCHLORINE PESTICIDES					
Aldrin	0.01	ND	ND	ND	ND
alpha-BHC	0.01	ND	ND	ND	ND
beta-BHC	0.02	ND	ND	ND	ND
delta-BHC	0.01	ND	ND	ND	ND
gamma-BHC	0.02	ND	ND	ND	ND
Chlordane	0.1	ND	ND	ND	ND
4,4'-DDD	0.02	ND	ND	ND	ND
4,4'-DDE	0.02	ND	ND	ND	ND
4,4'-DDT	0.02	ND	ND	ND	ND
Dieldrin	0.01	ND	ND	ND	ND
Endosulfan I	0.01	ND	ND	ND	ND
Endosulfan II	0.01	ND	ND	ND	ND
Endosulfan sulfate	0.02	ND	ND	ND	ND
Endrin	0.01	ND	ND	ND	ND
Endrin aldehyde	0.02	ND	ND	ND	ND
Heptachlor	0.01	ND	ND	ND	ND
Heptachlor epoxide	0.01	ND	ND	ND	ND
Methoxychlor	0.02	ND	ND	ND	ND
Toxaphene	0.1	ND	ND	ND	ND
POLYCHLORINATED BIPHENYLS					
Aroclor 1016	0.1	ND	ND	ND	ND
Aroclor 1221	0.1	ND	ND	ND	ND
Aroclor 1232	0.1	ND	ND	ND	ND
Aroclor 1242	0.1	ND	ND	ND	ND
Aroclor 1248	0.1	ND	ND	ND	ND
Aroclor 1254	0.1	ND	ND	ND	ND
Aroclor 1260	0.1	ND	ND	ND	ND

^aThe reporting limit for this sample is 10 times the listed reporting limits.



495/

LOG NO 5275

- 6 -

January 31, 1989

Descriptor, Lab No. and Results (mg/Kg)					
Parameter	Reporting Limit (mg/Kg)	Comp 7,19, 20 & 21 01-12-89	Comp 15,16, 17 & 18 01-12-89	Comp 8,9, 10 & 11 01-12-89	Comp 12,13, 14 & 22 01-12-89
		(-20994)	(-20995)	(-20996)	(-20997)
HERBICIDES					
2,4-D	1.0	ND	ND	ND	ND
2,4-DB	1.0	ND	ND	ND	ND
2,4,5-T	0.5	ND	ND	ND	ND
2,4,5-TP	0.5	ND	ND	ND	ND
Dalapon	6.0	ND	ND	ND	ND
Dicamba	0.5	ND	ND	ND	ND
Dichloroprop	0.8	ND	ND	ND	ND
Dinoseb	0.2	ND	ND	ND	ND
MCPA	200	ND	ND	ND	ND
MCPP	200	ND	ND	ND	ND

THE COVER LETTER AND KEY TO ABBREVIATIONS ARE AN INTEGRAL PART OF THIS REPORT

APPENDIX B

**RESULTS OF SOIL AND SEDIMENT TESTING FOR TOTAL MERCURY AND
METHYL-MERCURY AT THE BEL MARIN KEYS DISPOSAL AREA**

**RESULTS OF SOIL AND SEDIMENT TESTING FOR
TOTAL MERCURY AND METHYL-MERCURY
AT THE BEL MARIN KEYS DISPOSAL AREA**

Prepared for

Mr. Jeff Johnson
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1 Ecker Building
Suite 200
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Prepared by:

Advanced Biological Testing Inc.
5685 Redwood Dr. #506
Rohnert Park, California 94928

April 25, 2000

1.0 INTRODUCTION

The Bel Marin Keys Homeowners Association is proposing to dredge the Bel Marin Keys to historic depths in a maintenance dredging program. The Lagoon has been dredged historically and the sedimentary material placed at an adjacent upland site to dry (Figure 1). This site has been utilized for agricultural purposes since the last deposition of dredge material (early 1990's). Based upon the results of several recent studies conducted on sediments from the Lagoon, there is some concern regarding sedimentary levels of mercury (0.4 to 0.6 mg/kg dry weight). While the source of the mercury has not been defined, it is possible that natural sources in the Novato Creek watershed may be implicated. As part of a risk assessment for the upland disposal of sediment with moderate mercury contamination a preliminary research study is proposed.

The proposed study was designed to examine the existing historic disposal area (Figure 1) and determine levels of total mercury and methylmercury at eight sampling locations on the parcel and four stations in Novato Creek. Methylmercury is considered the bioactive compound causing toxicity and is implicated in bioaccumulation processes. It was assumed that the sediments and contaminants previously deposited into the disposal site are similar to those occurring in the Lagoon at the present time.

The proposed Study Plan was for a limited testing of sediments primarily from the historic disposal site that is proposed for reuse as part of the current dredging program. The analytical testing requirements are based on the Inland Testing Manual (ACOE/U.S.EPA 1998). This preliminary study was designed to evaluate the existing total mercury and methylmercury conditions at the historic disposal site and reference locations using soil samples split into horizontal segments. A total of eight core samples were taken from the eight stations identified on Figure 1. Each core was taken to 18" in depth. Each sample was divided into a top or surface sample (0"-6"), a mid-depth sample (6"-12" deep) and a bottom sample (12" - 18" deep) for analysis.

Each collected sample was placed immediately in a cleaned glass jar, labeled with a sample identification number, and placed in a cooler for transport to the analytical laboratory. Each sample was analyzed for total mercury, and methylmercury. The detection limits achieved was 0.02 µg/kg dry weight for total mercury and 1 µg/kg for methyl mercury. The percentage of methylated to total mercury was determined for each sample. In addition to

Advanced Biological Testing Inc.

the samples from the disposal parcel, two additional stations were located outside the levee adjacent to the historic disposal site and represent background conditions in the lower portion of Novato Creek. To assess sedimentary conditions upstream of the proposed dredge site, two stations were located upstream where Novato Creek passes under Highway 37. Positioning was by handheld GPS.

The sample collection was carried out by Advanced Biological Testing Inc. in Rohnert Park, California. The analytical chemistry was carried out by CRG Marine Laboratory in Terminal Island, California.

Quality assurance procedures to be used for sediment testing are consistent with methods described in the U.S.EPA/ACOE (1998). The methods employed in this sediment testing program are detailed in standard guides and procedures maintained in the analytical laboratory.

QA/QC procedures will include the analysis of procedural blanks and duplicates. The analysis of total mercury was by method EPA 6020 (ICP/MS). The analysis of methyl mercury was by ICP/MS. Daily logs of instrument performance are maintained including initial and continuing calibration verification.

2.0
RESULTS

The positioning and geological characteristics at the twelve test sites is presented in Table 1. The results of the sampling and testing program are presented in Tables 2 and 3.

Based upon the coring logs the material in the disposal area was dominated by relatively dry clayey/silty soil in the top six inches. Substantial grass and root growth was evident in the top six inches and was not noted at any significant level in the deeper sediments. The deeper sediments also were more hydrated than those on the surface with some free water collecting at the bottom of the hole (18"). It appeared that the water table is within one foot of the current soil surface elevation.

The results of the analytical testing show generally lower levels of total mercury in all of the three depth levels within the dredge disposal area than in the samples previously collected from the Lagoon (0.4 - 0.5 mg/Kg). The surface sediments had the highest average concentration of total mercury at 0.328 mg/kg. The 6" to 12" level and the 12"-18" had similar but lower concentrations of 0.268 mg/kg and 0.270 mg/kg respectively. The percentage of methyl mercury decreased with depth from 2.86% (0.009 mg/kg) in the surface sediments to 1.76% (0.004 mg/kg) in the mid-section, then increased again to 2.80% (0.002 mg/kg) in the bottom sediments.

The four samples taken from Novato Creek had higher total mercury concentrations in all three horizons than in the dredge disposal area. In the near reference stations (R-1 and R-2), the surface average was 0.362 mg/kg, with the mid-level at 0.418 mg/kg and the bottom at 0.371 mg/kg. In the upstream reference stations (R-3 and R-4) the surface was 0.406 mg/kg, the mid-level was 0.43 mg/kg and the bottom was 0.422 mg/kg.

Methyl mercury concentrations in the reference stations were slightly higher than in the dredge disposal area. The percentage of methyl mercury in the surface samples from the near reference stations was 3.29% (0.012 mg/kg). The mid-depth level had 3.71% (0.016 mg/kg) methyl mercury while the bottom level had the highest percentage level at 6.39% (0.024 mg/kg). The percentage of methyl mercury in the surface samples from the upstream reference stations was 2.44% (0.010 mg/kg). The mid-depth level had 0.28% (0.001 mg/kg) methyl mercury while the bottom level had the level at 1.21% (0.005 mg/kg).

Advanced Biological Testing Inc.

Based upon the data presented, the methylation of total mercury in the sediments that have been disposed at the upland site appears to be very low ranging from 2.69% in the surface samples to a low of 1.76% in the 6" to 12" zone. The potential for methylation appears to be slightly higher in the reference sediments from Novato Creek, particularly adjacent to the dredge disposal site.

TABLE 1
CORING LOG
Bel Marin Keys

<u>Station</u>	<u>Depth</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Sediment Description</u>
DA-1	0-6"	38°05.429'	122°29.561'	Clays and silts, grass/roots
	6-12"			Sticky clays and silts
	12-18"			Wet clays and silts
DA-2	0-6"	38°05.302'	122°29.518'	Clays and silts, grass/roots
	6-12"			Sticky clays and silts
	12-18"			Wet clays and silts
DA-3	0-6"	38°05.107'	122°29.460'	Clays and silts, grass/roots
	6-12"			Sticky clays and silts
	12-18"			Wet clays and silts
DA-4	0-6"	38°04.921'	122°29.410'	Clays and silts, grass/roots
	6-12"			Sticky clays and silts
	12-18"			Wet clays and silts
DA-5	0-6"	38°05.009'	122°29.212'	Clays and silts, grass/roots
	6-12"			Sticky clays and silts
	12-18"			Wet clays and silts
DA-6	0-6"	38°05.131'	122°29.261'	Clays and silts, grass/roots
	6-12"			Sticky clays and silts
	12-18"			Wet clays and silts
DA-7	0-6"	38°05.283'	122°29.343'	Clays and silts, grass/roots
	6-12"			Sticky clays and silts
	12-18"			Wet clays and silts
DA-8	0-6"	38°05.476'	122°29.404'	Clays and silts, grass/roots
	6-12"			Sticky clays and silts
	12-18"			Wet clays and silts

TABLE 1 cont.

CORING LOG
Bel Marin Keys

Station	Depth	Latitude	Longitude	Sediment Description
R-1	0-6"	38°05.489'	122°29.695'	Wet clays/silts, vegetation
	6-12"			Wet clays/silts, vegetation
	12-18"			Wet clays/silts
R-2	0-6"	38°05.544'	122°29.568'	Wet clays/silts, vegetation
	6-12"			Wet clays/silts, vegetation
	12-18"			Wet clays and silts
R-3	0-6"	38°05.262'	122°32.089'	Soft unconsolidated clays/silts
	6-12"			Soft unconsolidated clays/silts
	12-18"			Sticky clays and silts
R-4	0-6"	38°05.228'	122°32.065'	Soft unconsolidated clays/silts
	6-12"			Soft unconsolidated clays/silts
	12-18"			Sticky clays and silts

Terms:

Clays and silts: fine grained sediments

Wet clays and silts: cohesive, moist

Sticky clays and silts: semi-cohesive; lower moisture than wet

Vegetation: Wetland type vegetation; Spartina sp.

Grass/Roots: Upland and commercial grasses; roots

Table 2

**Comparison between Total Mercury and Methyl mercury
at three depths in the sediment strata**

Site	Depth	0-6 inches		6 to 12 inches			12 to 18 inches		
	Hg	MeHg	%MeHg/Hg	Hg	MeHg	%MeHg/Hg	Hg	MeHg	%MeHg/Hg
DA-1	0.198	0.004	2.02%	0.096	0.0028	2.92%	0.258	0.001	0.39%
DA-2	0.277	0.0148	5.34%	0.333	0.0013	0.39%	0.231	0.0015	0.65%
DA-3	0.496	0.001	0.20%	0.224	0.0096	4.29%	0.231	0.001	0.43%
DA-4	0.181	0.0079	4.36%	0.197	0.001	0.51%	0.176	0.0061	3.47%
DA-5	0.307	0.0021	0.68%	0.221	0.0071	3.21%	0.361	0.0325	9.00%
DA-6	0.441	0.0211	4.78%	0.331	0.0089	2.69%	0.308	0.0039	1.27%
DA-7	0.356	0.0058	1.63%	0.389	0.0041	1.05%	0.3	0.001	0.33%
DA-8	0.367	0.0183	4.99%	0.356	0.003	0.84%	0.296	0.0134	4.53%
DA averages	0.328	0.009	2.86%	0.268	0.005	1.76%	0.270	0.008	2.80%
R-1	0.273	0.001	0.37%	0.456	0.0261	5.72%	0.385	0.0434	11.27%
R-2	0.451	0.0228	5.06%	0.379	0.0049	1.29%	0.357	0.004	1.12%
R-3	0.479	0.0115	2.40%	0.348	0.0013	0.37%	0.338	0.0017	0.50%
R-4	0.332	0.0083	2.50%	0.511	0.0011	0.22%	0.506	0.0085	1.68%
Ref averages	0.384	0.011	2.84%	0.424	0.008	1.97%	0.397	0.014	3.63%

Table 3

Summary of Results
Average Concentrations and Relative Percentages

Depth	0-6 in			6-12 in			12-18 in		
	Hg	MeHg	%MeHg/Hg	Hg	MeHg	%MeHg/Hg	Hg	MeHg	%MeHg/Hg
Disposal Area	0.328	0.009	2.86%	0.268	0.005	1.76%	0.270	0.008	2.80%
Near Ref	0.362	0.012	3.29%	0.418	0.016	3.71%	0.371	0.024	6.39%
Upstream Ref	0.406	0.010	2.44%	0.430	0.001	0.28%	0.422	0.005	1.21%

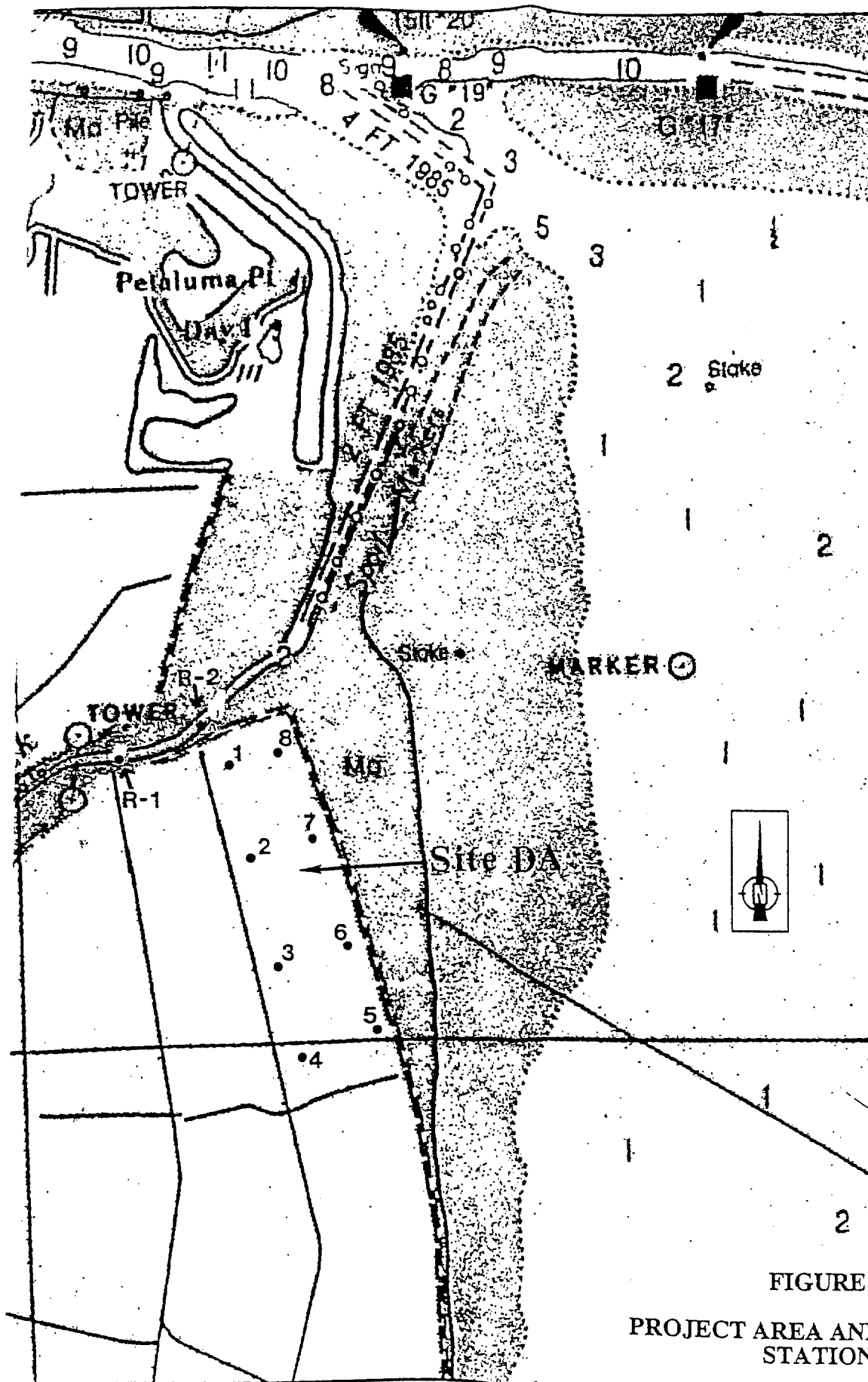
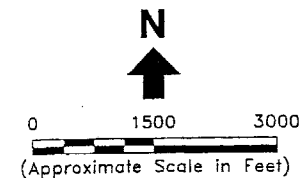
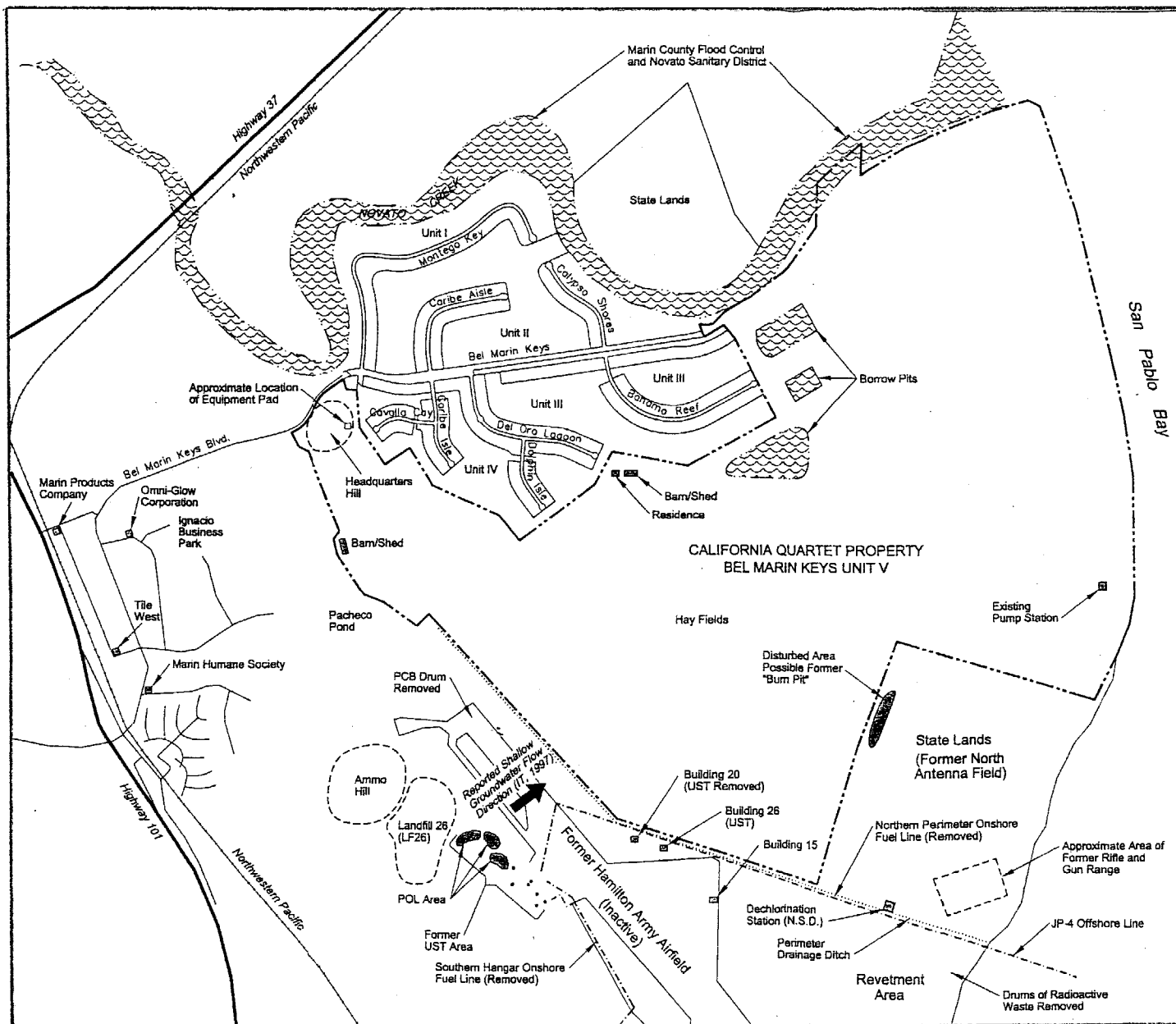


FIGURE 1

PROJECT AREA AND SAMPLING
STATIONS

BEL MARIN KEYS



LEGEND

- Approximate Subject Property Boundary
- - - Creek
- Railroad Tracks

Notes:

1. All locations are approximate.

Erler & Kalinowski, Inc.

Site Setting

California Quartet Property
Marin County, CA
April 2000
EKL A00018.00
Figure 2

Results of Shallow Soil Investigations

**Bel Marin Keys Unit V Property
Marin County, California**

Prepared for:

State Coastal Conservancy
Oakland, California

Prepared by:

Erler & Kalinowski, Inc.
(EKI A00065.00)

21 March 2002

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21 March 2002

Mr. Tom Gandesbery
State Coastal Conservancy
1330 Broadway, 11th Floor
Oakland, California 94612-2530

Subject: Shallow Soil Investigations Report
Bel Marin Keys Unit V Property
Marin County, California
(EKI A00065.00)

Dear Mr. Gandesbery:

Erler & Kalinowski, Inc. ("EKI") is pleased to present this *Results of Shallow Soil Investigations* report for the Bel Marin Keys Unit V Property in Marin County, California ("subject property").

This report was completed at the request of the State Coastal Conservancy and pursuant to the recommendations presented in EKI's Phase I Preliminary Environmental Site Assessment report for the subject property, dated 5 May 2000. This report summarizes results of soil sampling performed in several areas of the subject property. The purpose of this work was to investigate potential environmental concerns associated with historical uses on and adjacent to the subject property including the use of herbicides and/or pesticides for weed and bug control, the presence/use of fuel storage tanks for vehicle filling, and the presence of a debris pile.

This report is for the sole use of the State Coastal Conservancy. Unless specifically authorized by EKI, use of or reliance on this report by any other entity is not permitted or authorized.

If you have any questions regarding the information presented in this report, please do not hesitate to call.

Very truly yours,

ERLER & KALINOWSKI, INC.

Vera H. Nelson, P.E.
Project Manager

Earl D. James, P.E.
Supervisor

**Bel Marin Keys Unit V Property, Marin County, California
Results of Shallow Soil Investigations**

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**Bel Marin Keys Unit V Property, Marin County, California
Results of Shallow Soil Investigations**

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1.0 INTRODUCTION

This report describes the results of soil sampling performed by Erler & Kalinowski, Inc. ("EKI") at the Bel Marin Keys Unit V property located in Marin County, California (Figure 1). Work described herein was performed in accordance with EKI's proposal to the Coastal Conservancy, dated 20 July 2000.

The Bel Marin Keys Unit V property (the "subject property") is approximately 1,600 acres. The subject property has been in agricultural use for many decades. Several structures including two barns and a dilapidated residence exist on the subject property. EKI performed a Phase I environmental site assessment of the property and results of this assessment are presented in our report, dated 5 May 2000.

2.0 SCOPE OF WORK AND RATIONALE

Based on results of the Phase I environmental site assessment, soil sampling was performed at several areas across the subject property to investigate potential environmental concerns associated with historical uses on and adjacent to the subject property including the use of herbicides and/or pesticides for weed and bug control, the presence/use of fuel storage tanks for vehicle filling, and the presence of a debris pile.

The scope of work and identified areas of potential concern are described below. Soil sampling locations are shown on Figure 2. Table 1 presents a summary of samples collected and the analyses performed for each sample. Analytical test results of soil sampling are presented in Tables 2 through 8. Moisture contents were determined for the samples collected for the purpose of converting selected analytical test results to a dry weight basis and are presented in Table 9. The Department of Toxic Substances Control ("DTSC") performed an independent review of the sampling proposal and requested additional analytical testing in the area of the former above ground tanks which was incorporated into the sampling plan.

2.1 Former Above Ground Storage Tank Area

Two former above ground fuel storage tanks and fuel dispenser existed on or adjacent to the northern property boundary (Blymyer, 1989). A concrete pad and oblong concrete extension identified in our Phase I site walk-through is presumed to be the area of this former above ground tank. EKI collected two shallow soil samples (ShS-AGT-1s and ShS-AGT-2d) on the apparent downgradient side of the concrete pad and extension to investigate the potential for surface spills associated with use of the identified former

above ground tanks. These samples were collected at depths of 1.5 and 2.5 feet below ground surface ("bgs"), respectively.

Soil samples were analyzed for the following chemical constituents:

- Total Purgeable Petroleum Hydrocarbons quantified against gasoline ("TPHg") using U.S. EPA Method 8015 Mod.;
- Total Extractable Petroleum Hydrocarbons quantified against diesel ("TPHd") using U.S. EPA Method 8015 Mod. with silica gel cleanup;
- Cadmium, Chromium, Lead, Nickel, and Zinc using U.S. EPA Method 6000/7000 series;
- Polynuclear Aromatic Hydrocarbons ("PAHs") using U.S. EPA Method 8270; and
- Fuel oxygenates with MTBE and BTEX using U.S. EPA Method 8260B.

2.2 West Barn, East Barn, Crop Duster, and Drainage Ditches

Two barns are located on the subject property. One barn is located in the northwestern portion of the property ("West Barn") and one is located in the north central portion of the subject property ("East Barn"). Additionally, a 1990 aerial photograph identified the existence of an apparent crop dusting airplane on the dirt road west of the East Barn. If pesticides or herbicides were stored, mixed, or spilled on the subject property these would be likely areas of such activities. Three surface soil samples were collected near each barn (SS-East Barn-1, SS-East Barn-2, SS-East Barn-3, SS-West Barn-1, SS-West Barn-2 and SS-West Barn-3). One surface soil sample (SS-Duster-1) was collected near the area of the crop dusting airplane identified in the historic aerial photograph. Five additional surface soil samples (SS-Ditch-1 through SS-Ditch-5) were collected in the drainage ditches that transect the subject property to investigate whether these chemicals had run off with surface water drainage.

Soil samples were analyzed for the following chemical constituents:

- Organochlorine pesticides using U.S. EPA Method 8081;
- Chlorinated herbicides using U.S. EPA Method 8151; and
- Phenols using U.S. EPA Method 8270.

In addition to analyses for pesticides and herbicides, composites of samples collected near each barn and a composite of select samples collected from the drainage ditches were composited and analyzed for dioxins and furans using U.S. EPA Method 8280. These analyses were conducted because dioxins have been identified as contaminants in the manufacturing of some herbicides.

2.3 Debris Pile

One debris pile was identified in the northeastern portion of the property on the Bay side of the levee. Debris identified in the pile included bottles, cans, and rusted metals, as well as larger items such as a water heater, bicycle, and mattress springs. It appeared areas of the debris pile had been burned. A previous Phase I assessment performed by Miller Pacific Engineering Group (1994) had identified a second debris pile composed mainly of tires on the Bay side of the east-central portion of the levee. EKI's field technician identified a couple of tires in this area, but no pile. Given the lack of evidence for potential impact, no samples were collected in this area.

Four surface soil samples (SS-Debris-N-1s through SS-Debris-N-4s) collected adjacent to the debris pile were analyzed for the following:

- Metals using U.S. EPA Method 6020/7000 series;
- Semivolatile organic compounds ("SVOCs") using U.S. EPA Method 8270;
- Organochlorine pesticides using U.S. EPA Method 8081; and
- Chlorinated herbicides using U.S. EPA Method 8151.

Additionally, four soil samples (SS-Debris-N-1d through SS-Debris-N-4d) collected approximately 1 foot below the ground surface adjacent to the debris pile were analyzed for volatile organic compounds ("VOCs") using U.S. EPA Method 8260.

3.0 RESULTS OF PREVIOUS SHALLOW SOIL SAMPLING BY BLYMYER

In 1989, Blymyer Engineers, Inc. performed shallow soil sampling at 22 locations throughout the southwestern and central portions of the subject property (Blymyer, 1989). These soil sampling locations are shown on Figure 2. The soil samples were collected at approximately 12-inches below the ground surface. Composite soil samples were analyzed for total petroleum hydrocarbons ("TPH") as diesel, polychlorinated biphenyls ("PCBs"), organochlorine pesticides, and herbicides. None of the composite soil samples analyzed showed detectable levels of these compounds. Copies of the analytical data sheets for these composite soil samples are included in Appendix A.

4.0 DREDGE SPOILS SAMPLING BY ADVANCED BIOLOGICAL TESTING

In March 2000, Advanced Biological Testing, Inc. (ABT) sampled soil at 8 locations in the northeastern portion of the property for mercury and methyl-mercury. This northeastern section of the property has received dredge spoils resulting from historic dredging of Bel Marin Keys.

Results of this sampling are not discussed herein. EKI understands these results are being reviewed by the U.S. Corps of Engineers and environmental regulatory agencies in association with the potential conversion of the subject property into a wetland.

5.0 RESULTS OF SOIL INVESTIGATIONS BY EKI

5.1 Field Activities and Observations

Prior to initiating fieldwork, EKI prepared a site-specific Health & Safety Plan. On 27 July 2000, sampling activities were performed.

Soil samples were collected using a trowel and were subsequently placed in 1.5-inch diameter pre-cleaned stainless steel or brass tubes. The ends of the tubes containing the soil samples were covered with Teflon sheets and capped with plastic end caps. The sample containers were labeled and placed in an ice-filled cooler for temporary storage and transport to the analytical laboratory. Chain-of-custody documentation accompanied the samples to the laboratory. Prior to initial use and between each subsequent use, sampling equipment was cleaned with Alconox solution and triple rinsed with deionized water.

During sampling activities an organic vapor meter ("OVM") was used to screen for organic vapors from samples collected by the West Barn and the former above ground storage tank area. The OVM did not detect organic vapors in these areas, nor were petroleum hydrocarbon or other organic odors noted by the EKI field geologist during sampling activities.

5.2 Analytical Results for Soil Samples

The analytical results for soil samples are summarized below and are presented in Tables 2 through 8. Samples collected during this investigation were submitted to K-Prime Analytical laboratory in Petaluma, California, for analysis. Herbicide and dioxin analyses were subcontracted to North Coast Laboratories Ltd. and Alta Laboratories, respectively. The analytical laboratory data sheets for the soil samples are included in Appendix B.

5.2.1 Analytical Test Results for Soil Samples Collected Near the Former Above Ground Tank Area

Analytical test results indicate TPHd concentrations at 304 and 586 milligrams per kilogram ("mg/kg") detected in shallow soil near the former above ground storage tank area (see Table 2). TPHg, BTEX, and fuel oxygenates were not detected in the samples collected.

Analyses for five common metals associated with some petroleum products (cadmium, chromium, lead, nickel and zinc) are presented in Table 3. Cadmium was not detected in either of the soil samples collected. The maximum concentrations of the remaining metals analyzed were as follows: chromium at 81.7 mg/kg; lead at 271 mg/kg; nickel at 130 mg/kg; and zinc at 146 mg/kg.

PAHs were not detected in the samples collected near the former above ground tanks (see Table 4).

5.2.2 Analytical Test Results for Soil Samples Collected Near the West Barn, East Barn, Crop Duster, and Drainage Ditches

Some surface staining was identified near the West Barn where used oil filters were laying on the ground surface. Soil sample SS-West Barn-1 was collected at this location.

Analytical test results indicate the pesticide, 4,4-DDT, was detected in one soil sample collected near the East Barn at 67.7 micrograms per kilogram ("ug/kg") and one soil sample collected near the West Barn at 20.8 ug/kg. None of the other ten samples collected from these areas detected the presence of pesticides. Pesticide concentrations are presented in Table 5 on a dry weight basis. No herbicides or phenols were detected in the samples collected near the West Barn, East Barn, Crop Duster, or drainage ditches (see Tables 5 and 6).

Dioxin and furan compound concentrations from the East Barn, West Barn, and Drainage Ditch area composite samples are presented in Table 7 on a dry weight basis.

5.2.3 Analytical Test Results for Soil Samples Collected Near the Debris Pile

Analytical test results for metals from soil samples collected near the Debris Pile are presented in Table 3. Sample SS-Debris-N-1 was collected near a pile of metal cans and bottles which had evidence of being burned.

Pesticides were detected in three of the four samples collected at concentrations up to 62.3 ug/kg (4,4-DDE in sample SS-Debris-N-2s) (see Table 5).

No herbicides, SVOCs, or VOCs were detected in samples collected near the Debris Pile (see Tables 5 and 8).

6.0 CONCLUSIONS

Based on results of the investigations conducted at the subject property to date, the following conclusions are made:

- Former Above Ground Tank Area: TPHd and metals were detected in two shallow soil samples collected near the former above ground storage tank area. No TPHg, BTEX, fuel oxygenates or PAHs were detected in the samples collected from this area.
- West Barn Area: One of three soil samples collected near the West Barn detected the presence of 4,4-DDT at 20.8 ug/kg. This sample was collected near discarded waste including used oil filters. No herbicides or phenols were detected near the West Barn. The composite sample from this area submitted for dioxin analyses detected concentrations of some dioxin compounds.
- East Barn Area: One of three soil samples collected near the East Barn detected the presence of 4,4-DDT at 67.7 ug/kg. This sample was collected from within the structure. No herbicides or phenols were detected near or in the East Barn. The composite sample from this area submitted for dioxin analyses detected concentrations of some dioxin compounds.
- Crop Duster Area: No herbicides, pesticides, or phenols were detected from the sample collected near the position of a former crop dusting aircraft, as identified in the 1990 aerial photograph.
- Drainage Ditches/Field: No herbicides, pesticides, or phenols were detected in samples collected from drainage ditches across the site. The composite sample from this area submitted for dioxin analyses detected concentrations of some dioxin compounds. In addition, previous site-wide composite sampling performed by Blymyer Engineers (Blymyer, 1989) did not detect the presence of TPHd, PCBs, organochlorine pesticides or herbicides in shallow soil samples.
- Debris Pile: Pesticides were detected in 3 of the 4 samples collected in the debris pile area. Several metals were detected in soil samples collected in the Debris Pile area. No herbicides, SVOCs, or VOCs were detected in samples collected in the Debris Pile area.

7.0 REFERENCES

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TABLE 1
Analytical Soil Testing Summary
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Chemical Analyses with Method Number												
	TPHg (8015M)	TPHd (8015M) with silica gel cleanup	TPH as motor oil	Fuel Oxygenates and BTEX (8260)	Metals (6000/ 7010)	PAHs (8270)	Phenols (8270)	SVOCs (8270)	VOCs (8260)	Herbi- cides (8151A)	Pesti- cides (8081)	Dioxins (8280)	PCBs (8080)
<u>Above Ground Tank Area</u>													
ShS-AGT-1s	X	X		X	X	X							
ShS-AGT-2d	X	X		X	X	X							
<u>West Barn Area</u>													
SS-West Barn-1							X			X	X		
SS-West Barn-2							X			X	X		
SS-West Barn-3							X			X	X		
Comp-West Barn												X	
<u>East Barn Area</u>													
SS-East Barn-1							X			X	X		
SS-East Barn-2							X			X	X		
SS-East Barn-3							X			X	X		
Comp-East Barn												X	
<u>Crop Duster Area</u>													
SS-Duster-1							X			X	X		

TABLE 1
Analytical Soil Testing Summary
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Chemical Analyses with Method Number												
	TPHg (8015M)	TPHd (8015M) with silica gel cleanup	TPH as motor oil	Fuel Oxygenates and BTEX (8260)	Metals (6000/ 7010)	PAHs (8270)	Phenols (8270)	SVOCs (8270)	VOCs (8260)	Herbi- cides (8151A)	Pesti- cides (8081)	Dioxins (8280)	PCBs (8080)
<u>Drainage Ditches/Field Area</u>													
SS-Ditch-1							X			X	X		
SS-Ditch-2							X			X	X		
SS-Ditch-3							X			X	X		
SS-Ditch-4							X			X	X		
SS-Ditch-5							X			X	X		
Comp-Ditch												X	
<u>Samples Collected by Others</u>													
S-1		X											
S-2		X											
S-3		X											
S-4		X											
S-5		X											
S-6		X											
Comp 7, 19, 20, 21			X							X	X		X
Comp 15, 16, 17, 18			X							X	X		X
Comp 8, 9, 10, 11			X							X	X		X
Comp 12, 13, 14, 22			X							X	X		X

TABLE 1
Analytical Soil Testing Summary
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Chemical Analyses with Method Number												
	TPHg (8015M)	TPHd (8015M) with silica gel cleanup	TPH as motor oil	Fuel Oxygenates and BTEX (8260)	Metals (6000/ 7010)	PAHs (8270)	Phenols (8270)	SVOCs (8270)	VOCs (8260)	Herbi- cides (8151A)	Pesti- cides (8081)	Dioxins (8280)	PCBs (8080)
<u>Debris Pile Area</u>													
SS-Debris-N-1s					X			X		X	X		
SS-Debris-N-2s					X			X		X	X		
SS-Debris-N-3s					X			X		X	X		
SS-Debris-N-4s					X			X		X	X		
SS-Debris-N-1d									X				
SS-Debris-N-2d									X				
SS-Debris-N-3d									X				
SS-Debris-N-4d									X				

Notes:

BTEX = Benzene, toluene, ethylbenzene, and xylenes
PAHs = Polynuclear aromatic hydrocarbons
PCBs = Polychlorinated biphenyls
SVOCs = Semivolatile organic compounds

TPH = Total petroleum hydrocarbons
TPHd = Total petroleum hydrocarbons as diesel
TPHg = Total petroleum hydrocarbons as gasoline
VOCs = Volatile organic compounds

TABLE 2
Petroleum Hydrocarbons, BTEX, and Fuel Oxygenates in Soil
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Date Sampled	Sample Depth (ft bgs)	Analyzed Chemicals											
			Petroleum Hydrocarbons (mg/kg)			BTEX (ug/kg)				Fuel Oxygenates (ug/kg)				
			TPHg	TPHd	TPHmo	B	T	E	X	MTBE	DPE	ETBE	TAME	TBA
<u>Above Ground Tank Area</u>														
ShS-AGT-1s	8/7/00	1.5	<1.00	586	--	<5.0	<5.0	<5.0	<5.0	<50.0	<50.0	<50.0	<50.0	<100
ShS-AGT-2d	8/7/00	2.5	<1.00	304	--	<5.0	<5.0	<5.0	<5.0	<50.0	<50.0	<50.0	<50.0	<100
<u>Drainage Ditches/Field Area</u> ⁽¹⁾														
S-1	1/12/89		--	<10	<10	--	--	--	--	--	--	--	--	--
S-2	1/12/89		--	<10	<10	--	--	--	--	--	--	--	--	--
S-3	1/12/89		--	<10	<10	--	--	--	--	--	--	--	--	--
S-4	1/12/89		--	<10	<10	--	--	--	--	--	--	--	--	--
S-5	1/12/89		--	<10	<10	--	--	--	--	--	--	--	--	--
S-6	1/12/89		--	<10	<10	--	--	--	--	--	--	--	--	--

Notes:

B = Benzene
 BTEX = Benzene, toluene, ethylbenzene, and xylenes
 DPE = Diisopropyl ether
 E = Ethylbenzene
 ETBE = Ethyl tertiary butyl ether
 MTBE = Methyl tertiary butyl ether
 TAME = Tertiary amyl methyl ether
 TBA = Tertiary butyl alcohol
 T = Toluene
 TPHg = Total petroleum hydrocarbons as gasoline

TPHd = Total petroleum hydrocarbons as diesel,
 run with Silica Gel Cleanup
 TPHmo = Total petroleum hydrocarbons as motor oil
 X = Xylenes
 ft bgs = feet below ground surface
 mg/kg = milligram per kilogram
 ug/kg = micrograms per kilogram
 -- = Not analyzed
 < = Not detected above the laboratory limit stated

1. Noted samples were collected by Blymer Engineers

TABLE 3
Metals in Soil
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Date Sampled	Analyzed Metals (mg/kg)																
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
<u>Above Ground Tank Area</u>																		
ShS-AGT-1s	8/7/00	--	--	--	--	<5.0	32.5	--	--	271	--	--	40.2	--	--	--	--	146
ShS-AGT-2d	8/7/00	--	--	--	--	<5.0	81.7	--	--	12.8	--	--	130	--	--	--	--	60.8
<u>Debris Pile Area</u>																		
SS-Debris-N-1	8/7/00	<5.0	36	113	<5.0	20.0	81	28.1	191	650	<0.100	15.5	90	<5.0	<5.0	<5.0	32	3,931
SS-Debris-N-2	8/7/00	<5.0	12	219	<5.0	<5.0	64	11.7	46	130	0.25	<5.0	61	<5.0	<5.0	<5.0	55	319
SS-Debris-N-3	8/7/00	<5.0	12	100	<5.0	<5.0	50	11.3	37	88	0.20	<5.0	54	<5.0	<5.0	<5.0	44	172
SS-Debris-N-4	8/7/00	<5.0	10	54	<5.0	<5.0	54	11.3	30	29	<0.100	<5.0	57	<5.0	<5.0	<5.0	50	83

Notes:

mg/kg = Milligrams per kilogram

< = Not detected above laboratory limit stated

TABLE 4
Polynuclear Aromatic Hydrocarbons ("PAHs") in Soil
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Date Sampled	PAHs (ug/kg)
<i>Above Ground Tank Area</i>		
ShS-AGT-1s	8/7/00	<500
ShS-AGT-2d	8/7/00	<50

Notes:

ug/kg = Micrograms per kilogram

< = Not detected above the laboratory limit stated

TABLE 5
Organochlorine Pesticides, Chlorinated Herbicides, and PCBs in Soil
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Date Sampled	Analyzed Chemicals ⁽¹⁾				
		Detected Organochlorine Pesticides (ug/kg)			Chlorinated Herbicides (ug/kg)	PCBs (mg/kg)
		4,4-DDE	4,4-DDD	4,4-DDT		
<u>East Barn Area</u>						
SS-East Barn-1	8/7/00	<10.0	<10.0	<10.0	ND	--
SS-East Barn-2	8/7/00	<10.0	<10.0	<10.0	ND	--
SS-East Barn-3	8/7/00	<10.0	<10.0	67.7	ND	--
<u>Crop Duster Area</u>						
SS-Duster-1	8/7/00	<10.0	<10.0	<10.0	ND	--
<u>West Barn Area</u>						
SS-West Barn-1	8/7/00	<10.0	<10.0	20.8	ND	--
SS-West Barn-2	8/7/00	<10.0	<10.0	<10.0	ND	--
SS-West Barn-3	8/7/00	<10.0	<10.0	<10.0	ND	--
<u>Drainage Ditches/Field</u>						
SS-Ditch-1	8/7/00	<10.0	<10.0	<10.0	ND	--
SS-Ditch-2	8/7/00	<10.0	<10.0	<10.0	ND	--
SS-Ditch-3	8/7/00	<10.0	<10.0	<10.0	ND	--
SS-Ditch-4	8/7/00	<10.0	<10.0	<10.0	ND	--
SS-Ditch-5	8/7/00	<10.0	<10.0	<10.0	ND	--
Comp 7, 19, 20, 21	1/12/89	<20	<20	<20	ND	ND
Comp 15, 16, 17, 18	1/12/89	<20	<20	<20	ND	ND
Comp 8, 9, 10, 11	1/12/89	<20	<20	<20	ND	ND
Comp 12, 13, 14, 22	1/12/89	<20	<20	<20	ND	ND

TABLE 5
Organochlorine Pesticides, Chlorinated Herbicides, and PCBs in Soil
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Date Sampled	Analyzed Chemicals ⁽¹⁾				
		Detected Organochlorine Pesticides (ug/kg)			Chlorinated Herbicides (ug/kg)	PCBs (mg/kg)
		4,4-DDE	4,4-DDD	4,4-DDT		
<i>Debris Pile Area</i>						
SS-Debris-N-1s	8/7/00	<10.0	<10.0	18.5	ND	--
SS-Debris-N-2s	8/7/00	68.9	68.5	11.5	ND	--
SS-Debris-N-3s	8/7/00	<10.0	<10.0	56.1	ND	--
SS-Debris-N-4s	8/7/00	<10.0	<10.0	<10.0	ND	--

Notes:

DDD = Dichlorodiphenyldichloroethane

DDE = Dichlorodiphenyldichloroethylene

DDT = Dichlorodiphenyltrichloroethane

mg/kg = Milligrams per kilogram

ND = Not detected above the laboratory reporting limit (see analytical test sheets)

ug/kg = Micrograms per kilogram

< = Not detected above the laboratory limit stated

-- = Not analyzed

1. Detected values reported on a dry weight basis.

2. Laboratory reporting limits for herbicides range between 0.1 and 100 micrograms per gram

TABLE 6
Phenols in Soil
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Date Sampled	Phenols (ug/kg)
<u>East Barn Area</u>		
SS-East Barn-1	8/7/00	ND
SS-East Barn-2	8/7/00	ND
SS-East Barn-3	8/7/00	ND
<u>Crop Duster Area</u>		
SS-Duster-1	8/7/00	ND
<u>West Barn Area</u>		
SS-West Barn-1	8/7/00	ND
SS-West Barn-2	8/7/00	ND
SS-West Barn-3	8/7/00	ND
<u>Drainage Ditches/Field</u>		
SS-Ditch-1	8/7/00	ND
SS-Ditch-2	8/7/00	ND
SS-Ditch-3	8/7/00	ND
SS-Ditch-4	8/7/00	ND
SS-Ditch-5	8/7/00	ND

Notes:

ug/kg = micrograms per kilogram

ND = Not detected above the laboratory reporting limit
(see analytical test sheets)

1. Laboratory reporting limits range from 660 to 1,600 ug/kg.

TABLE 7
Dioxins in Soil
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Compound Concentrations (ng/g) ⁽¹⁾						
	2,3,7,8-TCDD	1,2,3,7,8-PeCDD	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	1,2,3,4,6,7,8-HpCDD	OCDD
East Barn Area (Comp)	<0.00118	<0.00336	<0.00182	<0.00179	<0.00171	0.0121	0.0735
West Barn Area (Comp)	<0.000403	<0.000820	<0.00101	<0.00109	<0.000997	0.0138	0.0280
Ditch Area (Comp)	<0.000452	<0.00123	<0.00223	<0.00217	<0.00207	0.00560	0.0266

TABLE 7
Dioxins in Soil
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Compound Concentrations (ng/g) ⁽¹⁾									
	2,3,7,8-TCDF	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDF	1,2,3,7,8,9-HxCDF	2,3,4,6,7,8-HxCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	OCDF
East Barn Area (Comp)	0.00177	<0.00126	0.0131	<0.00134	0.00308	<0.00168	0.00433	0.00713	<0.00368	<0.00533
West Barn Area (Comp)	<0.000420	<0.000679	<0.000815	<0.000430	<0.000446	<0.000663	<0.000369	<0.00189	<0.00238	<0.00226
Ditch Area (Comp)	0.00157	<0.00193	<0.00208	<0.00153	<0.00141	<0.00213	<0.00120	<0.00152	<0.00194	<0.00134

TABLE 7
Dioxins in Soil
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Compound Concentrations (ng/g) ⁽¹⁾							
	Total TCDD	Total PeCDD	Total HxCDD	Total HpCDD	Total TCDF	Total PeCDF	Total HxCDF	Total HpCDF
East Barn Area (Comp)	<0.00118	<0.00336	0.0142	0.0269	0.0656	0.140	0.0643	0.0154
West Barn Area (Comp)	<0.000403	<0.000820	0.00416	0.0223	<0.000420	0.00239	0.00413	<0.00210
Ditch Area (Comp)	0.00122	<0.00123	<0.00215	0.0125	0.0252	0.00257	<0.00151	<0.00171

Notes:

Hp = Hepta

Hx = Hexa

O = Octa

Pe = Penta

T = Tetra

CDD = Polychlorinated Dibenzo-p-dioxins

CDF = Polychlorinated Dibenzofurans

comp = Composite sample

ng/g = Nanograms per gram

TCDD = Tetrachlorodibenzo-p-dioxin

TCDF = Tetrachlorodibenzofuran

< = Not detected above the laboratory limit stated

1. Values reported on a dry weight basis.

TABLE 8
Semivolatile Organic Compounds ("SVOCs") and
Volatile Organic Compounds ("VOCs") in Soil
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Date Sampled	SVOCs (ug/kg)	VOCs (ug/kg)
<i>Debris Pile Area</i>			
SS-Debris-N-1s	8/7/00	ND	--
SS-Debris-N-2s	8/7/00	ND	--
SS-Debris-N-3s	8/7/00	ND	--
SS-Debris-N-4s	8/7/00	ND	--
SS-Debris-N-1d	8/7/00	--	ND
SS-Debris-N-2d	8/7/00	--	ND
SS-Debris-N-3d	8/7/00	--	ND
SS-Debris-N-4d	8/7/00	--	ND

Notes:

ug/kg = micrograms per kilogram

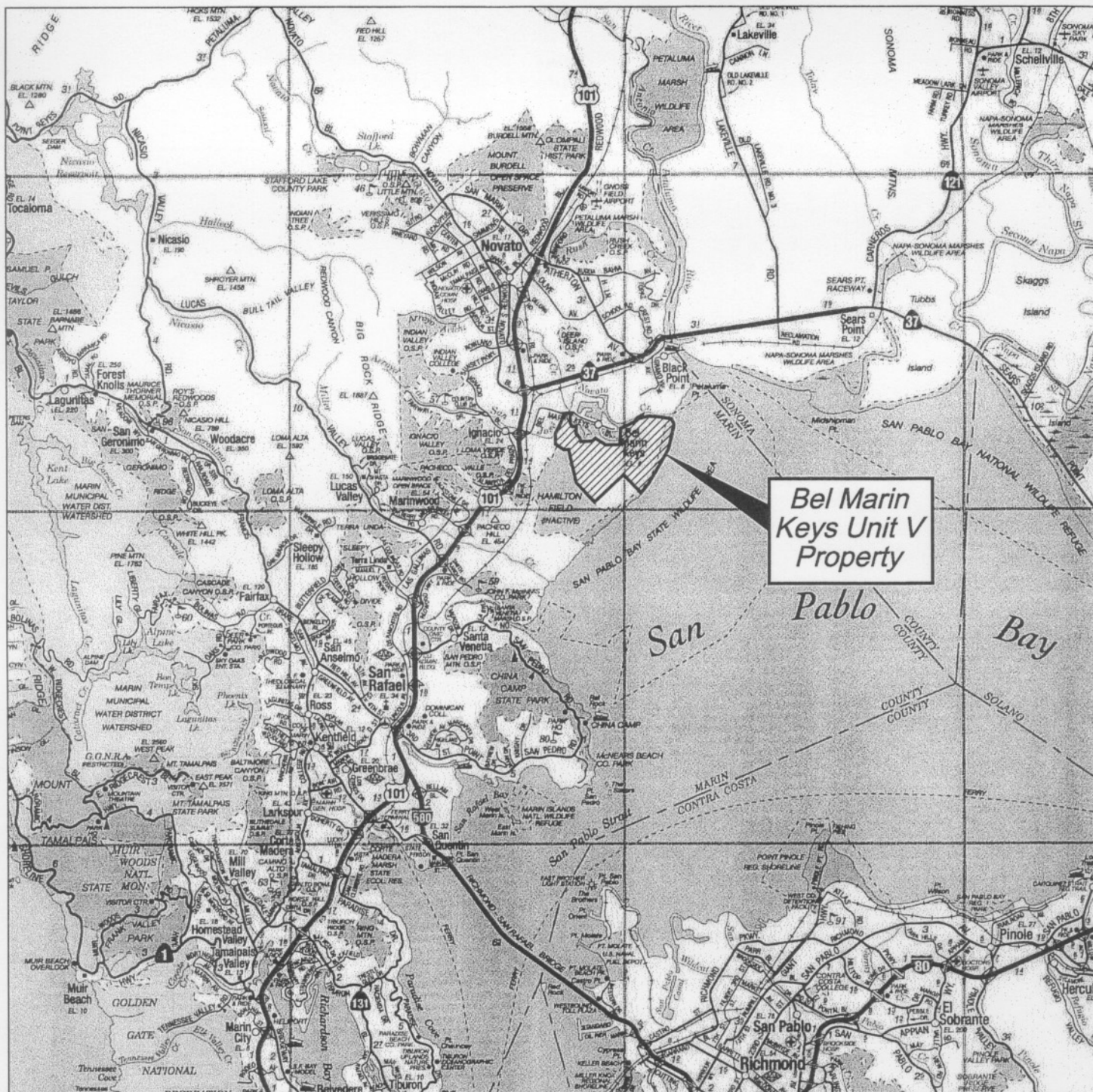
ND = Not detected above the laboratory reporting limit

-- = not analyzed

1. Laboratory reporting limits for SVOCs range between 330 and 1,600 ug/kg.
2. Laboratory reporting limits for VOCs range between 5.0 and 100 ug/kg.

TABLE 9
Moisture Content
Bel Marin Keys Unit V Property
Marin County, California

Sample ID	Date Sampled	Moisture Content (%)
<u>Above Ground Tank Area</u>		
ShS-AGT-1s	8/7/00	3.28
ShS-AGT-2d	8/7/00	5.71
<u>East Barn Area</u>		
SS-East Barn-1	8/7/00	7.67
SS-East Barn-2	8/7/00	15.0
SS-East Barn-3	8/7/00	11.5
<u>Crop Duster Area</u>		
SS-Duster-1	8/7/00	12.3
<u>West Barn Area</u>		
SS-West Barn-1	8/7/00	18.8
SS-West Barn-2	8/7/00	28.0
SS-West Barn-3	8/7/00	16.5
<u>Drainage Ditches/Field Area</u>		
SS-Ditch-1	8/7/00	37.0
SS-Ditch-2	8/7/00	59.2
SS-Ditch-3	8/7/00	61.5
SS-Ditch-4	8/7/00	49.1
SS-Ditch-5	8/7/00	58.0
<u>Debris Pile Area</u>		
SS-Debris-N-1s	8/7/00	22.3
SS-Debris-N-2s	8/7/00	10.6
SS-Debris-N-3s	8/7/00	18.6
SS-Debris-N-4s	8/7/00	20.9

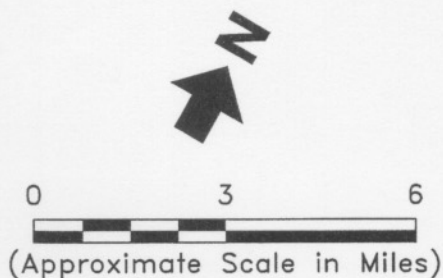


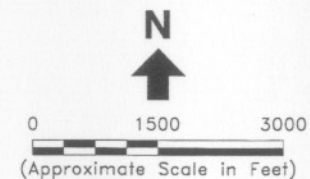
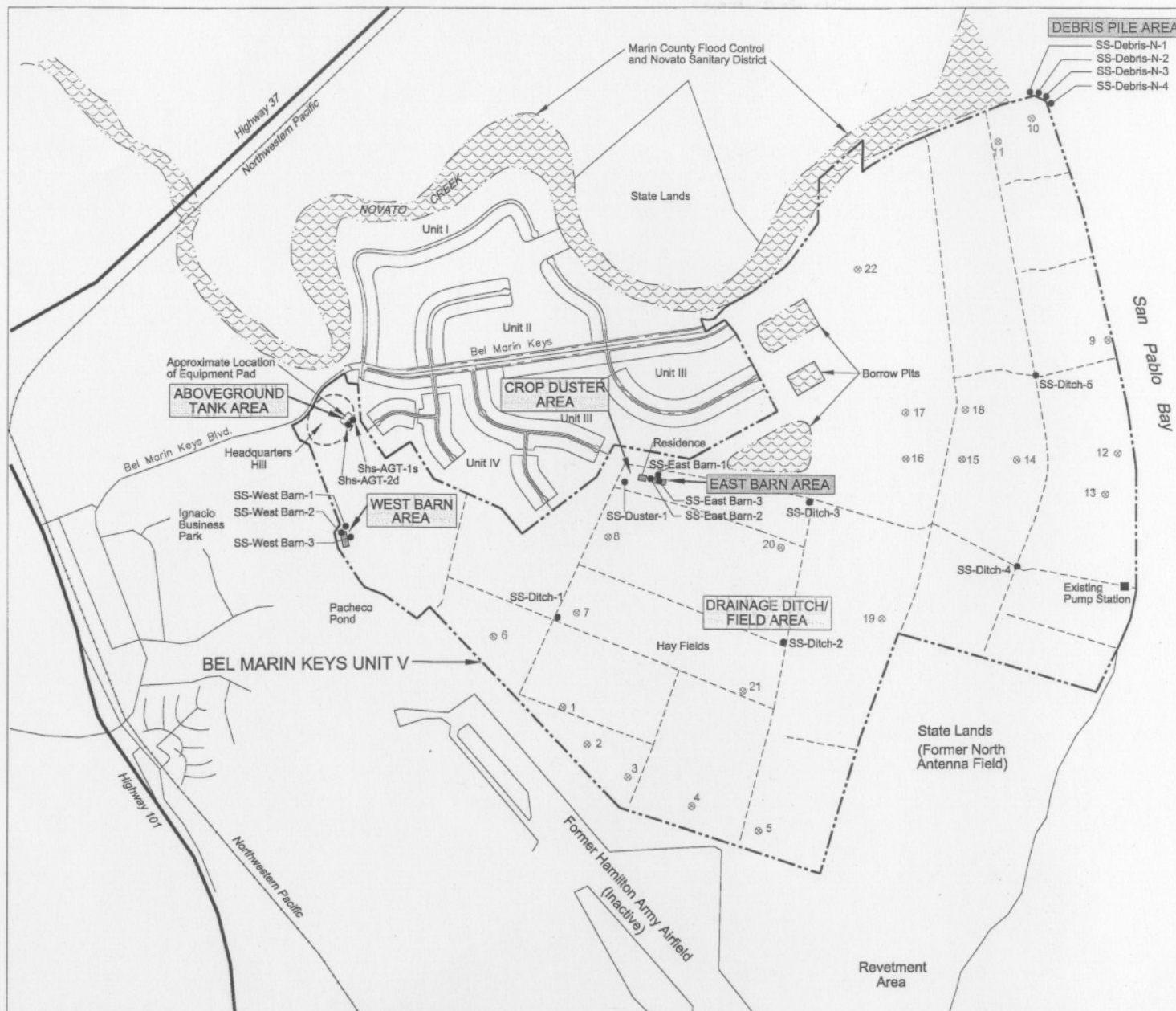
Reference: San Francisco Bay Region AAA Map, 1997.

Erler & Kalinowski, Inc.

Site Location Map

Bel Marin Keys Unit V Property
Marin, CA
March 2002
EKI A00065.00
Figure 1





LEGEND

- Approximate Subject Property Boundary
- Creek
- Railroad Tracks
- Existing Ditches
- Approximate Soil Sample Location (Collected by EKI, 2000)
- ⊙ Approximate Soil Sample Location (Collected by Blymyer, 1989)

Notes:

1. All locations are approximate.

**Erler &
Kalinowski, Inc.**

Soil Sampling Locations

Bel Marin Keys Unit V Property
Marin County, CA
March 2002
EKI A00065.00
Figure 2